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AN ANALYSIS OF THE POST-COMMISSIONING OFFICER PERFORMANCE FOR GRADUATES OF THE NAVAL ACADEMY PREPARATORY SCHOOL (NAPS)

by

David J. Albritton
September 1993

Thesis Advisor: Mark J. Eitelberg

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This thesis analyzes the military performance of Naval officers who graduated from the Naval Academy Preparatory School (NAPS) and subsequently received a commission through the United States Naval Academy (USNA). Using a sample from the Navy Personnel Research and Development Center's USNA Longitudinal Officer Data Base, two measures of performance were examined for officers commissioned between 1980 and 1985. Retention was first analyzed by creating a binary criterion to designate whether an officer was on active duty or not as of June 1990, producing a continuation rate for each year group in the study. A performance index was also developed, based on the number of recommendations for early promotion (REP) appearing on all qualified fitness reports. The results indicate that retention rates tend to be higher for USNA graduates who attended NAPS than for those who did not. However, NAPS graduates are less likely than other USNA officers to receive a REP on their fitness report. Performance differences were found based on demographic characteristics, education, and Navy experience. Several recommendations for future research on NAPS graduates are offered.

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An Analysis of the Post-Commissioning Officer Performance for Graduates of the Naval Academy Preparatory School (NAPS)

by

David J. Albritton
Lieutenant, United States Navy
B.S., United States Naval Academy, 1988

Submitted in partial fulfillment
of the requirements for the degree of

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Author: _____
David J. Albritton

Approved by: _____
Mark J. Eitelberg, Thesis Advisor

Approved by: _____
Benjamin J. Roberts, Associate Advisor

_____
David R. Whipple, Chairman
Department of Administrative Sciences

ABSTRACT

This thesis analyzes the military performance of Naval officers who graduated from the Naval Academy Preparatory School (NAPS) and subsequently received a commission through the United States Naval Academy (USNA). Using a sample from the Navy Personnel Research and Development Center's USNA Longitudinal Officer Data Base, two measures of performance were examined for officers commissioned between 1980 and 1985. Retention was first evaluated by creating a binary criterion to designate whether an officer was on active duty or not as of June 1990, producing a continuation rate for each year group in the study. A performance index was also developed based on the number of recommendations for early promotion (REP) appearing on all qualified fitness reports. The results indicate that retention rates tend to be higher for USNA graduates who attended NAPS than for those who did not. However, NAPS graduates are less likely than other USNA officers to receive a REP on their fitness report. Performance differences were found based on demographic characteristics, education, and Navy experience. Several recommendations for future research on NAPS graduates are offered.

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I. INTRODUCTION

A. BACKGROUND

The United States is coming upon times unlike any other in its history. Anticipating that steeper cuts in future military spending are inevitable, the Department of Defense (DOD) prepares to reduce its forces to levels well below those projected as recently as the late 1980s. These reductions in spending are primarily due to two factors. First, the newly-elected administration has promised to reduce the federal deficit through substantial budgetary cuts, a large part of which will be undertaken by the military. Second, with the dissolution of the Soviet Union, there has been a major shift in the strategic goals and missions that guided America's defense establishment for over forty years. It is therefore appropriate for DOD to shift its focus toward streamlining and consolidating certain functions and activities, based upon the changing requirements of the U.S. military.

The House Armed Services Committee, in its report on the fiscal 1991 National Defense Authorization Act, noted that the size of the officer corps, and of the service academies, would decline in future years. (U.S. General Accounting Office (GAO), 1992) For the Department of the Navy, the task is to

find more efficient and less expensive ways to train its personnel in light of these reductions, while maintaining quality.

Being one of the most well-known and elite Navy training facilities, the United States Naval Academy (USNA) will be one of the most highly scrutinized institutions as the Navy seeks to cut costs in its officer commissioning programs. Admiral Hyman G. Rickover, in hearings before the House Committee on Appropriations in 1974, discussed the quality of USNA graduates. During his testimony, he was highly critical of the service academies, saying that the academies did not satisfy the needs of the modern military. He recommended that midshipmen not be allowed to specialize their courses of study at the Academy, and instead be instructed primarily in science and engineering to provide a basis for problem-solving later. (Government Printing Office, 1974) Rickover's primary point was that:

> The Naval Academy must be the source of the highest quality naval officers produced each year. Performance must be the criterion for judging the quality of Naval Academy graduates because the Naval Academy can only justify its existence through the quality of its graduates. (Government Printing Office, 1974)

Along these lines, it follows that the primary USNA subsidiary, the Naval Academy Preparatory School (NAPS), will also face close examination based on its role in producing future USNA midshipmen.

The mission of NAPS is to strengthen the academic foundation of enlisted members of the active-duty Fleet and

Reserves from the Navy, Marine Corps, and Coast Guard for officer accession through the United States Naval, Coast Guard and Merchant Marine Academies. In 1992, the General Accounting Office observed that the armed services have done little analysis concerning the performance of former prep school students as officers. (GAO, 1992)

The Dean of Admissions, USNA, has since initiated research that may ultimately effect the future of NAPS. This thesis was undertaken to support the research effort and assist Navy policy makers in making informed decisions concerning NAPS.

B. OBJECTIVES

The objective of this thesis is to examine the officer performance of Navy personnel who are graduates of NAPS and, subsequently, USNA. Specifically, this research attempts to answer two questions concerning these officers:

1. Does the post-commissioning performance of former NAPS students differ from that of other USNA graduates based on officer evaluation reports and retention?
2. Is there a significant difference in officer performance for minorities, women, recruited athletes, and other NAPS graduates based on these criteria?

Criteria of officer performance are developed and validated to answer these questions. These criteria are explained in Chapter III.

C. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The USNA and NAPS programs were selected for this study because of the availability of the data and the author's experience and familiarity with both programs. Only officers who were graduates of USNA and chose careers in the Navy were included in the sample analyzed. Aside from NAPS, the Broadened Opportunity for Officer Selection and Training (BOOST) program is the only other government-sponsored feeder program that assists USNA in expanding its enrollment. Officers who attended BOOST were not differentiated in this study for two reasons. First, the focus of the thesis is on graduates of NAPS. Second, in a Master's thesis, titled "The Role of the BOOST Program in Supporting the Navy's Minority Accession Policies," Jackson and Maddox (1990) found that, between 1985 and 1990, only 10 of 21 BOOST students entered USNA and eventually graduated. Due to the small number of BOOST students, no attempt was made to separate them from the much larger sample of USNA graduates.

A potential limitation of this study relates to the nature of the measures used to gauge officer performance. Uncontrollable factors such as job assignments, pre-entry personal characteristics and abilities, and warfare specialties may account for differences in performance that are not quantifiable and therefore not analyzed. (Neumann, 1992) This study assumes that fitness reports (FITREPs) provide a reasonably accurate measure of performance. The

FITREP is described in the Navy's policy implementation instructions as follows:

> The FITREP is the primary tool used for comparing officers and arriving at career decisions with respect to relative merit for a. promotion, b. assignments, c. retention, d. selection for command, ..., h. other career actions as required. (Department of the Navy, 1981)

In the civilian sector, pay could be used as a criterion for measuring productivity; but, since all officers of the same rank receive the same base pay, this factor could not be used to differentiate performance differences in this study. Measures derived from officer FITREPs are a valuable source of information, keeping in mind that, over the years, grade inflation has led to questions of the FITREP's usefulness in selecting officers for promotion and assignment. Officer retention is analyzed simply from the perspective of whether or not the individual remained in the Navy and does not account for factors that may affect either voluntary or involuntary separation from service. (Nolan, 1993)

D. ORGANIZATION OF THE STUDY

This study is organized into five chapters and four appendices. Chapter II contains a review of pertinent literature, providing a background for the formulation of the performance indices used in the study. Chapter III explains the data used as well as the methodology for the research. Discussion of the variables employed in the analysis are also presented here. Chapter IV discusses the results of the

analysis. Chapter V presents conclusions from the research and offers recommendations for further research.

Appendix A presents the characteristics of officers used in the study. Appendix B contains figures that exhibit the pre-commissioning performance of NAPS and non-NAPS graduates. Appendix C is comprised of figures that display the results of the continuation rate analysis. Appendix D contains figures that show the results of the mean REP rate analysis.

II. LITERATURE REVIEW

A search for literature related to the study topic reveals two interesting findings. First, the pre-commissioning performance of both NAPS and non-NAPS USNA graduates is annually reviewed, updated, and made available to the Dean of Admissions at the Naval Academy. (Interview, 1992) However, previous research concerning the post-commissioning officer performance of USNA graduates has been very limited. Nonetheless, there are a number of studies that examine the performance of officers from various accession sources, though each of these studies employs a different methodology and has a different purpose. The publications chosen for this review are representative of these studies and provide a useful foundation for developing a methodology. This section discusses both pre-commissioning and post-commissioning performance of officers from USNA and other accession sources.

A. PRE-COMMISSIONING PERFORMANCE

A 1992 study by GAO, titled "DOD Service Academies: Academy Preparatory Schools Need a Clearer Mission and Better Oversight," assessed how well the three service academy prep schools accomplished their missions, whether they were cost-effective, and the quality of their performance. The GAO

researchers analyzed data on the demographic characteristics and academic qualifications of students in the 1988-89 and 1989-90 classes and reviewed information on each school's curriculum and faculty credentials. As part of the study, GAO researchers interviewed several Naval Academy officials regarding their perceptions of NAPS. USNA officials expressed their belief that NAPS helps prepare women, minorities, and recruited athletes for admission to USNA and thereby promote diversity in the officer corps. The officials also stated that service goals for enrolling minorities at USNA would be difficult to meet without the NAPS contribution. For the two USNA classes examined in the GAO study, NAPS graduates accounted for 9.4 percent of women, 31.8 percent of minorities, and 21.5 percent of the recruited athletes. (GAO, 1992)

Pre-commissioning USNA performance was analyzed in the study by comparing the USNA academic grade point average (GPA) and military performance GPA of NAPS and non-NAPS students. The results revealed that while the sub-groups of NAPS women, minorities, and recruited athletes fared reasonably well in these areas, their performance collectively was significantly below that of non-NAPS students. Conversely, the USNA graduation rate was slightly higher for students who came from NAPS than those who did not.

GAO researchers concluded that NAPS students performed about as well as expected based on their record before

attending USNA (e.g., lower Scholastic Aptitude Test (SAT) scores). No clear explanation was offered as to why NAPS students graduated from USNA at a higher rate than non-NAPS students. However, one may conjecture that the difference in graduation rates is due to the higher level of maturity and experience that NAPS students have prior to attending USNA and the fact that an additional year of educational effort was required before admission to the Academy. This may have provided NAPS students with an extra incentive to reach the ultimate goal of USNA graduation.

B. POST-COMMISSIONING PERFORMANCE

The first study on post-commissioning performance reviewed was Bowman's (1990) analysis of the "Rickover Hypothesis," which states that the best naval officers tend to have a solid technical background. Bowman measured the performance of officers at the end of their fourth year of service and examined retention by finding the probability that an officer would stay in the service at least six months past the initial length of obligated service.

Bowman's use of a logit model to compare academic performance (grade point average by major) to fleet performance (recommendation for early promotion, ranked top 1 percent for command desirability and in overall summary) is theoretically sound; however, his sample data suffered from "selectivity bias." Selectivity bias is the tendency for an

individual from a particular background to choose between two or more alternatives. As applied to the Bowman analysis, it is whether or not midshipmen choose a particular warfare community over another based on their academic background (e.g., order of merit).

In Bowman's study, the sample of officers is limited to 1976-1980 USNA graduates who selected either the surface or subsurface warfare communities and did not leave the Navy. Most submarines and selected surface vessels are nuclear-powered. Personal experience at USNA, shows that individuals who select nuclear power have a service selection that is separate from the rest of their class who select a warfare specialty by their order of merit. Order of merit is determined primarily from cumulative grade point average. There are also other examples.

The Navy recruits for and screens entrants into the nuclear power program by both grades (2.5 GPA and above) and major (almost entirely engineering or in math/physical sciences). Those who fail out of the nuclear power program are normally recycled through the surface warfare training pipeline regardless of their personal desires. Similarly, individuals who exit the flight program are usually recycled in the same manner. It is therefore clear that selectivity bias for these two communities is directly related to the attrition rates from both the nuclear and flight programs.

Bowman concluded that, for the group selected in his study, "there appears to be little if any relationship between the academic world of the academy graduates and the real world of junior officers serving in the surface and submarine warfare communities.... Even for those with higher GPAs, regardless of academic major, [sic] are no more likely to do better in the fleet." (p. 283) He found that the only academic major at USNA that had any correlation to superior performance is the now-defunct business/management major. In addition, it appears that USNA graduates are fairly homogeneous, because all majors take a significant level of technical courses. Bowman also observed that academic performance is closely related to an individual's service selection for the reasons noted above. (Bowman, 1990)

In a Master's thesis, titled "An Analysis of the Relative Productivity of Officers From Different Accession Sources," Foster (1990) examined the relative productivity of officers graduating from USNA, Naval Reserve Officer Training Corps (NROTC), and Officer Candidate School (OCS) using a performance index based upon fitness report data. Foster used a sample of over 15,000 surface and subsurface warfare officers from year groups 1977 through 1987 in a multivariate regression to determine the effect that commissioning source may have had on performance.

The results of Foster's analysis suggest that USNA graduates outperform NROTC and OCS graduates by a small

margin. Foster also found performance differences between officers who held warfare or engineering qualifications and those who did not. (Foster, 1990)

Another Master's thesis, completed by Armel (1988), explored the possible relationship between fitness report scores and selected characteristics of officers in the Marine Corps. The primary area of interest was the possible relationship between commissioning source and post-commissioning officer performance. Armel developed a performance index (PI) to quantify fitness report performance and used this as a measure of comparison on the basis of mean PI scores. He also used multivariate linear regression to estimate the effect that each of his chosen variables would have on performance. These variables included commissioning source, sex, ethnic group, General Classification Test (GCT) score, military occupational specialty (MOS), year accessed, and home of record.[1]

The results of Armel's study imply that commissioning source does not have a meaningful effect on officer performance. At the same time, he found a significant relationship between performance measures and selected demographic variables, indicating the need for further

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[1]The General Classification Test is administered to every Marine officer upon entry and is a permanent part of his or her military record. It is a measure of general knowledge comprised of various tests that seek to measure, among other things, arithmetic reasoning, vocabulary, and the understanding of spacial relationships.

research on the subject. (Armel, 1988)

Nolan (1993) conducted a study for his Master's thesis, titled "An Analysis of Surface Warfare Officer Measures of Effectiveness as Related to Commissioning Source, Undergraduate Education, and Navy Training," in which he developed multivariate models to estimate differences in officer performance. Nolan used data from the Navy Officer Master File (OMF), Navy Officer Loss File (OLF), and the Navy Personnel Research and Development Center's Traintrack System File to find the probability of Surface Warfare Officer (SWO) retention between the Lieutenant (LT) and Lieutenant Commander (LCDR) selection boards (1981-90), the probability of promotion to LCDR (1985-90), and the probability of receiving early professional qualifications by the time of the LT selection boards (1981-85).

Nolan's findings suggest that a majority of the variation in SWO measures of effectiveness are due to differences in human capital gained from pre-commissioning education or through Navy training. He also highlighted performance differences of officers by commissioning source and the selectivity of the officer's college. Nolan went on to recommend that a cost-benefit analysis be conducted to determine the optimal mix of officers from various accession sources. (Nolan, 1993)

Another relevant study is Neumann's (1989) "Development and Evaluation of an Officer Potential Composite." The primary

objective of this study was to expand the scope of the USNA candidate selection system so that it would include a prediction of officer performance. (Neumann, 1989) Neumann's methodology incorporated the following major steps:

1. Use officer fitness reports to develop and assign officer performance scores;
2. Identify relevant individual difference variables using these officer performance scores that demonstrate stable relationships; and
3. Evaluate USNA predictors and criteria and the impact that officer potential indicators had on them. (Neumann, 1989)

Neumann's sample consisted of USNA graduates from 1979-1982 who chose the surface, subsurface, and air warfare communities. These officers were selected because they all had at least four years of commissioned service and information was available on their fitness reports and USNA selection and performance scores.

The results of Neumann's study suggest that the early promotion recommendation is a significant variable for distinguishing differences in officer performance. The study also found that an individual's performance as a midshipman at USNA is significantly related to his or her likelihood of receiving an early promotion recommendation. (Neumann, 1989)

Neumann (1992) conducted research for another study, titled "Officer Continuation and Performance Rates," which evaluated

USNA graduates in terms of longevity and performance. The study also included longevity and performance data for commissioning sources other than USNA. The data set was compiled from Officer Master and Loss Files and fitness reports, and it included officers commissioned during the years 1972 through 1985. The study conducted various analyses on officer continuation and performance for each commissioning source and simultaneously broke down the sample of officers into subgroups such as warfare specialty, officer community, gender, and minority/majority membership.

Neumann's results suggest that, in most of the sub-groupings mentioned above, USNA graduates outperformed officers from other accession sources with respect to retention and fitness report scores.

C. SUMMARY

The literature reviewed above reveals several possible methods for analyzing the performance of officers in both the pre-commissioning and post-commissioning stages of their careers. Each study utilized a somewhat different methodology, was based on different objectives, and each approach has its advantages and disadvantages. Nevertheless, these studies provide a theoretical base for examining the performance of NAPS graduates who are commissioned through USNA. The approach employed in Neumann's (1992) study appears to be most closely tied to the objectives of this thesis. The data samples used

are also very similar in origin and include a majority of the same categorical elements. Consequently, the approach adopted for this thesis relies heavily on the previous work of Neumann.

III. DATA AND METHODOLOGY

A. DATA

1. The Officer Sample

The present analysis used the U.S. Naval Academy Longitudinal Officer Data Base, which is maintained at the Navy Personnel Research and Development Center (NPRDC) in San Diego, CA. This file consists of data on USNA applicants and selectees dating back to the graduating class of 1971, and it includes information on selection scores, demographic data, school performance, and officer performance. The Officer Master File (OMF) and Officer Loss File (OLF) were used to establish whether or not an officer was on active duty as of June 1990. Another sample used from data base contained Reports on the Fitness of Officers (FITREPs) for all active duty and discharged officers as of June 1990.

Since the data base includes much more information than is necessary for this analysis, only certain aspects of it were chosen. The first and most important restriction placed on the data was the requirement that only USNA graduates who were commissioned as naval officers be included in the study. Small numbers of midshipmen each year are commissioned into the U.S. Marine Corps, Army, and Air Force or graduate and do

not receive a commission and therefore are not considered pertinent to the analysis. Another restriction included graduates of USNA classes 1971-1977. The data base contains no information on NAPS graduates from these year groups, so they were not included in the officer sample. Other restrictions involved USNA classes 1977-78 and 1986-91. Women were not admitted to USNA until July 1976 and were therefore not commissioned until June 1980. Consequently, to achieve a better and more consistent comparative analysis, only graduates from 1980 and later were included. In addition, USNA classes from 1986-91 were not included in the sample, because, as of June 1990, these year groups had not yet met their minimum service requirement (MSR) of five years in exchange for receiving their USNA diplomas. In terms of retention, it is difficult to establish a proper criterion if the individual has not completed his or her MSR. Also, by the five year point in a naval career, each individual should have reached the rank of LT, thereby removing any bias associated with Ensign and Lieutenant Junior Grade performance on FITREPs.

Table 1 displays the groups of background factors and the variables associated with each group used in the study. These are the factors and variables that are employed in the statistical analysis in Chapter IV.

Table 1. VARIABLE CATEGORIES FOR OFFICER PERFORMANCE AND RETENTION ANALYSES

PERSONAL DEMOGRAPHICS
-GENDER
-RACIAL/ETHNIC GROUP
-RECRUITED ATHLETES
-USNA CLASS
EDUCATIONAL EXPERIENCE
-UNDERGRADUATE MAJOR
-POSTGRADUATE EDUCATION
-USNA ORDER OF MERIT
NAVY EXPERIENCE
-DESIGNATOR
Source: (Nolan, 1993).

As seen in Table 1 there are three broad categories of variables used in this study. The first category includes personal demographics. Racial/ethnic group is coded as a binary variable which signifies whether an individual is white or nonwhite (black and other categories). Recruited athletes are individuals who are actively recruited by the Naval Academy Athletic Association (NAAA) in accordance with the rules of the National Collegiate Athletic Association (NCAA), in support of the academy's intercollegiate athletic program. This is also coded as a binary variable. The variables for gender and USNA class are self-explanatory.

The second group of background factors contains information on the individual's educational experience. Undergraduate major is divided into two categories: technical and non-technical majors. Until 1980, there was a third major category, management, which would apply to those individuals who were in the 1978 and 1979 graduating classes. Due to the relatively small number of individuals with this major (134 in 1978 and 137 in 1979), the management major was not included in the study. Postgraduate education reflects an individual's educational achievement after graduating from USNA. It is coded as a binary variable signifying whether or not the individual had some type of postgraduate education on the level of the degrees listed in Table 2 below.

Table 2. EDUCATIONAL LEVELS FOR OFFICERS CONSIDERED TO HAVE POSTGRADUATE EDUCATION

MASTER
Master's degree or selected second professional degrees, e.g., Law (L.L.M.), Theology (Th.M.)
POST-MASTER
Post-Master's degree beyond master's level but less than a doctorate, e.g., Degree of Engineer. Includes those officers who submit evidence of completion of all work toward a doctorate except the dissertation.
DOCTORATE
Doctor's degree (Ph.D.) or equivalent in selected fields, e.g., Education (Ed.D.), Law (J.S.D.)

Source: USNA Longitudinal Officer Data Base Documentation (NPRDC, 1989).

USNA order of merit is based on the order of an individual's class ranking at the end of the first semester of his or her senior year. The class ranking is a cumulative measure of the four year performance of midshipmen and is comprised of about 70 percent for academic performance and 30 percent for nonacademic performance, of which military performance is the primary component. (GAO, 1993) Achieving a high class ranking is important, because it means a midshipman will more likely be able to choose his or her first choice of a career field before the available positions are filled. Coding for this variable is as follows:

TOP	Officer graduated between 1-25% of class.
SMART	Officer graduated between 26-50% of class.
AVERAGE	Officer graduated between 51-75% of class.
BOTTOM	Officer graduated between 76-100% of class.

The third group of background factors represents information dealing with an individual's Navy experience. To separate officers into warfare communities, the four-digit warfare designators were used to separate pertinent groups of officers. The initial sample consisted of 74 different designators; but certain designators were combined into sub-variables to represent selected warfare communities. Table 3 shows the sub-variables for selected designators.

Table 3. DESCRIPTION OF VARIABLES AND RELATED DESIGNATORS

VARIABLE	DESCRIPTION	DESIGNATOR
GURL	General Unrestricted Line Officer	1100,1105
SWO	Surface Warfare Officer	1110,1115,1117
SUB	Submarine Warfare Officer	1120,1125
PILOT	Naval Aviator	1310,1315,1317
NFO	Naval Flight Officer	1320,1325,1327
SUPPLY	Supply Corps Officer	3100,3105
OTHER	Various	Various[2]
Source: Derived from data provided by NPRDC.		

Table 4 provides a complete listing of all the variables used in the study, including a description of how the variables were coded and their frequencies. Frequencies are shown in order to provide a general understanding of the sample and sub-sample sizes for each of the variable types. A more detailed discussion of these variables and the characteristics of officers can be found in Appendix A.

[2]Various designators were included in this variable due to the large number of designators with relatively small numbers of individuals. Included in these are Cryptology, Intelligence, Public Affairs, as well as others.

TABLE 4. VARIABLE NAMES, DESCRIPTIONS, AND FREQUENCIES.

NAME	DESCRIPTION	FULL SAMPLE	NAPS	NON-NAPS
FEMALE	=1 if Female	302	18	284
NONWHITE	=1 if Minority	504	104	400
RECRUIT	=1 if Recruited Athlete	1133	189	944
CLASS	USNA Classes 1980-85	4647	574	4073
TECH	=1 if Undergraduate Major considered technical	3813	467	3346
NONTECH	=1 if Undergraduate Major considered non-technical	834	107	727
POSTGRAD	=1 if has Postgraduate Educational Experience	722	78	644
TOP	=1 if graduated 1-25% of graduating class	1313	78	1235
SMART	=1 if graduated 26-50% of graduating class	1265	139	1126
AVERAGE	=1 if graduated 51-75% of graduating class	1207	176	1031
BOTTOM	=1 if graduated 76-100% of graduating class	862	181	681
GURL	=1 if GURL	259	36	223
SWO	=1 if SWO	1116	160	956
SUB	=1 if SUB	930	60	870
PILOT	=1 if PILOT	908	145	763
NFO	=1 if NFO	596	72	524
SUPPLY	=1 if SUPPLY	181	28	153
OTHER	=1 if OTHER	566	63	503

Source: Derived from data provided by NPRDC.

B. METHODOLOGY

As previously noted, this study examines performance differences between NAPS and non-NAPS graduates of USNA through the use of descriptive statistical analysis. The tables and figures presented here provide information on

retention and officer performance measures within warfare specialties, USNA classes, gender, race, and various other groupings. The following discussion explains how these performance measures were constructed.

1. Retention

Neumann (1992) discusses retention in terms of "continuation rate," which is defined as the ratio of the number of officers (in a specified group at a specified time) on active duty, to the number of officers in the same group at some previous time. Continuation rate is calculated as follows:

$$C_t = \frac{A_t}{N_t}$$

where:

C_t = continuation rate for some time period t
A_t = number of officers on active duty at time t
N_t = number of officers in starting inventory

In the present study, the term continuation rate is substituted for retention.

For every officer in the officer sample, a binary continuation score was computed, with "1" indicating that the officer was on active duty as of June, 1990, and "0" indicating that he or she was not on active duty. The data sample used includes a number of factors to assist in making this determination. These factors are the estimated loss code (ELC), the Bureau of Personnel loss code (BLC), and an

estimated loss date (ELD), and they were used as follows:

a. If the officer had a valid ELC, a valid BLC, and an ELD prior to July 1990, a code of "0" was assigned.

b. If the officer had a valid BLC and a valid ELC but the ELD date was after the June 1990 date, a code of "1" was assigned.

c. If the officer was on board as of June 1990 without a valid ELC or BLC, and no ELD, a code of "1" was assigned.

d. If any of the three codes (ELC, BLC, or ELD) were missing, the continuation score was coded as missing. (Neumann, 1992)

By using the described procedure, continuation rates from 0 to 100 percent were computed on the data sample.

2. Officer evaluation performance

The original data sample included a variable called AVEPROM, which is theoretically similar to the variable REP (Recommended for Early Promotion) used in two studies by Neumann (1989 and 1992). REP is essentially a summary score, derived from cumulative FITREPs and based on the "recommendation for promotion" rating. The only FITREPs considered for this measure are those that were:

a. Based on Commander (CDR) and below performance;

b. Indicated as having ratings that were based on close observation; and

c. Reported to have had the reporting senior simultaneously rating other officers in his or her command. (Neumann, 1992)

For each officer, a separate summary score was computed to indicate the proportion of occasions on which the officer received the highest possible rating, that is, "recommended for early promotion," for all qualified fitness reports. Therefore, a score of 100 indicates that the officer received the highest rating on all of his or her fitness reports, while a 0 score indicates that he or she never received the highest rating. A standardized score was then created within each USNA class and the mean of these standardized scores is referred to as the REP score. (Neumann, 1992) Mean REP scores were computed for each USNA class in the study.

IV. RESULTS / FINDINGS

This section details the results of the descriptive statistical analysis. The results are presented in a series of tables. Figures are also used to graphically display the similarities and differences between NAPS and non-NAPS graduates of USNA. These figures are presented in Appendix B Figures 1A through 1D for the pre-commissioning performance; Appendix C Figures 2 through 9G for continuation rate; and Appendix D Figures 10 through 17G for mean REP rate. The results are also presented by various background factors for each of the USNA graduating classes from 1980-85.

A. PRE-COMMISSIONING PERFORMANCE

In terms of order of merit, the results suggest that NAPS graduates were less successful at USNA than their non-NAPS counterparts. A cross-tabulation of these results is shown in Table 5 and in Figures 1A-1D.

TABLE 5. PRE-COMMISSIONING PERFORMANCE OF NAPS AND NON-NAPS GRADUATES BY ORDER OF MERIT AND USNA CLASS

USNA CLASS		NAPS				NON-NAPS			
		1-25%	26-50%	51-75%	76-100%	1-25%	26-50%	51-75%	76-100%
80	N	14	28	38	30	202	170	150	80
	%	12.73	25.45	34.55	27.27	33.55	28.24	24.92	13.21
81	N	12	24	29	30	220	202	190	85
	%	12.63	25.26	30.53	31.58	31.56	28.98	27.26	12.20
82	N	10	19	25	29	220	202	188	150
	%	12.05	22.89	30.12	34.94	28.95	26.58	24.74	19.74
83	N	14	25	32	31	198	198	178	132
	%	13.73	24.51	31.37	30.39	28.05	28.05	25.21	18.70
84	N	11	21	23	30	196	175	169	102
	%	12.94	24.71	27.06	35.29	30.53	27.26	26.32	15.89
85	N	17	22	29	31	199	179	156	132
	%	17.17	15.83	29.29	31.31	29.88	26.88	23.42	19.82
TOTAL	N	78	139	176	181	1235	1126	1031	681
	%	13.59	24.22	30.66	31.53	30.32	27.65	25.31	16.72

Source: Derived from data provided by NPRDC.

As seen in Table 5, 13.5 percent of NAPS graduates go on to graduate in the 1-25 percent category of their class, as compared with 30.3 percent of non-NAPS officers. This trend continues for the 26-50 percent category revealing that former NAPS students are outperformed by 3.4 percentage points. In addition, about 42 percent of non-NAPS students graduate from USNA in the bottom half of their class (51-100 percent), compared with 62.2 percent of those who attended NAPS. Over the years covered here, there seems to be a consistent trend of lower performance by NAPS graduates, with small deviations occurring within each period. As expected, this echoes the findings about NAPS students contained in previous research. (GAO, 1992)

B. POST-COMMISSIONING PERFORMANCE

1. CONTINUATION RATE.

a. Complete Sample

Table 6 presents the continuation rates for officers in the sample who were determined to have been on active duty as of June, 1990. As seen in Table 6, NAPS graduates have an overall continuation rate that is 6.2 percentage points higher than that of non-NAPS graduates (73 percent for NAPS, compared with 66.8 percent for non-NAPS). Indeed, for every class of USNA graduates between 1980 and 1985, the continuation rate for former NAPS students exceeds the rate of their non-NAPS counterparts.

TABLE 6. CONTINUATION RATE FOR NAPS AND NON-NAPS GRADUATES IN THE COMPLETE SAMPLE BY USNA CLASS

USNA CLASS		NAPS	NON-NAPS
80	N CONTINUATION RATE (%)	59(110) 53.64	308(602) 51.33
81	N CONTINUATION RATE (%)	59 (95) 62.11	362(697) 52.16
82	N CONTINUATION RATE (%)	58 (83) 69.88	452(760) 59.47
83	N CONTINUATION RATE (%)	80(102) 78.43	510(706) 72.44
84	N CONTINUATION RATE (%)	69 (85) 81.18	492(642) 76.64
85	N CONTINUATION RATE (%)	94 (99) 94.95	597(666) 90.05
TOTAL	N CONTINUATION RATE (%)	419(574) 73.00	2721(4073) 66.80
Source: Derived from data provided by NPRDC.			

Care must be taken when interpreting the results in this and later tables or figures because of the disparity in the actual numbers of NAPS and non-NAPS graduates. Of the 3,140 officers on active duty as of June 1990, only 419 or 13.3 percent were from NAPS. Nevertheless, the results suggest that proportionally, NAPS graduates outperform non-NAPS graduates by a significant margin in terms of their continuation rate. Figure 2 in Appendix B provides a visual depiction of the results. It also shows in graphic form the expected downward trend in continuation rate for individuals as they spend more time in the military.

b. Gender

As seen in Table 7, of the 302 women in the sample, only 18 (or about 6 percent) are graduates from NAPS. Comparatively, this particular subsample is too small from which to draw reasonable conclusions; however, of these 18 women, 14 were still on active duty, giving this cohort a 77.7 percent continuation rate. If a comparison were to be made, even in light of the small subsample, one could say that more NAPS women remained on active duty at a rate much higher than their non-NAPS contemporaries.

Referring to the table again, the results show that NAPS men exceed the continuation rate for non-NAPS men by a considerable amount. These results indicate that, regardless of gender, non-NAPS graduates are less likely to remain in the Navy than NAPS graduates. (See Figures 3A and 3B for the

comparison.)

TABLE 7. CONTINUATION RATE AND NUMBERS BY GENDER AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	MEN	WOMEN	MEN	WOMEN
80				
N	59(109)	0 (1)	283 (557)	25 (45)
CONTINUATION RATE(%)	54.13	0.00	50.99	55.56
81				
N	58 (94)	1 (1)	338 (651)	24 (46)
CONTINUATION RATE(%)	61.70	100.00	52.16	52.17
82				
N	54 (78)	4 (5)	429 (711)	23 (49)
CONTINUATION RATE(%)	69.23	80.00	60.34	46.94
83				
N	77 (98)	3 (4)	484 (667)	26 (39)
CONTINUATION RATE(%)	78.57	75.00	72.78	66.67
84				
N	66 (81)	3 (4)	458 (596)	34 (46)
CONTINUATION RATE(%)	81.48	75.00	76.85	73.91
85				
N	91 (96)	3 (3)	545 (607)	52 (59)
CONTINUATION RATE(%)	94.79	100.00	90.23	88.14
TOTAL				
N	405 (556)	14 (18)	2537 (3789)	184(284)
CONTINUATION RATE(%)	72.84	77.78	67.13	64.79

Source: Derived from data provided by NPRDC.

c. Racial/Ethnic Group

Overall, the results indicate that nonwhite NAPS officers tend to stay on active duty at a higher rate than their white counterparts. The results also reveal that these individuals outperform both white and nonwhite non-NAPS officers by a considerable amount, as can be seen in Table 8.

TABLE 8. CONTINUATION RATE AND NUMBERS BY RACIAL/ETHNIC GROUP AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	WHITE	NONWHITE	WHITE	NONWHITE
80 N CONTINUATION RATE(%)	49(96) 51.04	10 (14) 71.43	282 (547) 51.74	26 (55) 47.27
81 N CONTINUATION RATE(%)	42 (73) 57.53	17 (22) 77.27	325 (624) 52.33	37 (73) 50.68
82 N CONTINUATION RATE(%)	50 (72) 69.44	8 (11) 72.73	414 (690) 60.00	38 (70) 54.29
83 N CONTINUATION RATE(%)	66 (81) 81.48	14 (21) 66.67	457 (635) 72.20	53 (71) 74.65
84 N CONTINUATION RATE(%)	56 (67) 83.58	13 (18) 72.22	443 (576) 76.91	49 (66) 74.24
85 N CONTINUATION RATE(%)	78 (81) 96.30	16 (18) 88.89	540 (602) 90.15	57 (64) 89.06
TOTAL N CONTINUATION RATE(%)	341 (470) 72.55	78(104) 75.00	2461 (3673) 67.00	260(400) 64.79

Source: Derived from data provided by NPRDC.

Over the years, nonwhite NAPS officers remain on active duty at an almost constant rate, which runs counter to the general trend (mentioned above) showing progressively lower continuation rates of Navy officers as they advance in seniority. Because of the historical bias against employment of minorities in the civilian sector, the above results should be expected. On the other hand, as seen in Table 8, the continuation rate for non-NAPS, nonwhite officers is almost consistently lower than that of their white, non-NAPS counterparts.

d. Recruited Athletes

Table 9 reveals that, while NAPS recruited athletes have a higher continuation rate than both non-NAPS recruited and non-recruited athletes, they are somewhat less likely to remain on active duty than officers who were NAPS non-recruited athletes. Also, observe that non-NAPS recruited athletes tend to exhibit the lowest tendency to stay in the Navy. The fact that recruited athletes are generally less likely to stay in the Navy is unexpected. The team-building concept developed by participation in organized sports and also fostered in the military should play a significant role in an individual's decision to remain in the military. Apparently, this is not generally true.

TABLE 9. CONTINUATION RATE AND NUMBERS BY RECRUITED ATHLETES AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	RECRUIT	NONRECRUIT	RECRUIT	NONRECRUIT
80 N CONTINUATION RATE(%)	19(37) 51.35	40 (73) 54.79	69 (148) 47.26	239(454) 52.64
81 N CONTINUATION RATE(%)	21 (39) 53.85	38 (56) 67.86	76 (166) 46.63	286(531) 53.86
82 N CONTINUATION RATE(%)	21 (28) 75.00	37 (55) 67.27	108 (180) 60.00	344(580) 59.31
83 N CONTINUATION RATE(%)	18 (26) 69.23	62 (76) 81.58	111 (151) 74.50	399(555) 71.89
84 N CONTINUATION RATE(%)	24 (29) 82.76	45 (56) 80.36	129 (166) 77.71	363(476) 76.26
85 N CONTINUATION RATE(%)	28 (30) 93.33	66 (69) 95.65	116 (141) 84.06	481(525) 91.62
TOTAL N CONTINUATION RATE(%)	131(189) 69.31	288(385) 74.81	609 (944) 64.65	2112(3129) 67.67

Source: Derived from data provided by NPRDC.

e. Undergraduate Major

As seen in Table 10 (and Figures 6A and 6B), NAPS graduates with technical majors remained in the Navy at a rate slightly higher than their non-NAPS counterparts. Through the years, the results show that this group consistently had a higher continuation rate than all others, except for non-technical majors in the USNA class of 1982. Also observe that, again, as evidenced in the above groupings, NAPS graduates outperformed non-NAPS graduates by a considerable margin.

TABLE 10. CONTINUATION RATE AND NUMBERS BY UNDERGRADUATE MAJOR AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	TECH	NONTECH	TECH	NONTECH
80 N CONTINUATION RATE(%)	51 (88) 57.95	8 (22) 36.36	251 (496) 50.81	57(106) 53.77
81 N CONTINUATION RATE(%)	52 (81) 64.20	7 (14) 50.00	299 (571) 52.64	63(126) 50.00
82 N CONTINUATION RATE(%)	45 (67) 67.16	13 (16) 81.25	379 (635) 59.69	73(125) 58.40
83 N CONTINUATION RATE(%)	64 (83) 77.11	16 (19) 84.21	415 (572) 72.81	95(134) 70.90
84 N CONTINUATION RATE(%)	57 (70) 81.43	12 (15) 80.00	396 (521) 76.01	96(121) 79.34
85 N CONTINUATION RATE(%)	74 (78) 94.87	20 (21) 95.24	492 (551) 89.78	105(115) 91.30
TOTAL N CONTINUATION RATE(%)	343(467) 73.45	76 (107) 71.03	2232(3346) 66.91	489(727) 67.26

Source: Derived from data provided by NPRDC.

f. Postgraduate Education

Officers with postgraduate education quite handily outdistanced those officers without this education, for both NAPS and non-NAPS groups, as an inspection of Table 11 (Figures 7A AND 7B) relates. Overall, more than 90 percent of officers with postgraduate education were still in the Navy; this compares with over 60 percent of other officers.

TABLE 11. CONTINUATION RATE AND NUMBERS BY POSTGRADUATE EDUCATION AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	POSTGRAD	NOPOSTGRAD	POSTGRAD	NOPOSTGRAD
80 N CONTINUATION RATE(%)	26 (27) 96.30	33 (83) 39.76	129 (138) 94.85	179(464) 38.58
81 N CONTINUATION RATE(%)	13 (15) 86.67	46 (80) 57.50	140 (148) 96.55	222(549) 40.44
82 N CONTINUATION RATE(%)	13 (13) 100.00	45 (70) 64.29	114 (116) 98.28	338(644) 52.48
83 N CONTINUATION RATE(%)	12 (13) 92.31	68 (89) 76.40	121 (125) 98.37	389(581) 66.95
84 N CONTINUATION RATE(%)	5 (6) 83.33	64 (79) 81.01	69 (72) 95.83	423(570) 74.21
85 N CONTINUATION RATE(%)	4 (4) 100.00	90 (95) 94.74	48 (54) 94.12	549(612) 89.71
TOTAL N CONTINUATION RATE(%)	73(78) 93.59	346 (496) 69.76	621(644) 96.58	2100(3429) 61.24
Source: Derived from data provided by NPRDC.				

Postgraduate education was found to have a significant positive effect on officer promotions in a study, titled, "Graduate Education and the Promotion of Officers," completed by Cymrot (1986). Perhaps these officers realize the effects of having this educational experience and tend to remain on active duty since they have a much higher probability of getting promoted in the long run than those without the education. At the same time, officers with postgraduate education are individuals who most probably

utilized government-funded education and incurred an additional service obligation, therefore having a higher continuation rate.

Notice, however, that for this sub-grouping of officers, non-NAPS officers with postgraduate education remain in the service at a rate that is slightly higher than their NAPS counterparts. Referring to Appendix A, from the entire sample of NAPS and non-NAPS graduates with postgraduate education, (78 and 644, respectively) NAPS officers attained this education at a lower rate than their non-NAPS peers, as evidenced below:

NAPS Sample:	78 of 574	(13.5 percent)
Non-NAPS Sample:	644 of 4,073	(15.8 percent)

g. Order of Merit

Despite the fact that NAPS graduates tend to graduate lower in their class comparatively, in almost every instance over the years from 1980-85, these officers have been more likely to remain on active duty than other USNA officers. This suggests that, although NAPS graduates are generally less successful college students, they tend to remain on active duty longer. This also lends support to the saying of midshipmen at USNA: "It makes no difference if you graduate first or last in your class--on graduation day, you are all called by the same name...Ensign."

TABLE 12A. POST-COMMISSIONING CONTINUATION RATE AND NUMBERS FOR NAPS GRADUATES BY ORDER OF MERIT AND USNA CLASS

USNA CLASS	NAPS			
	1-25%	26-50%	51-75%	76-100%
80 N CONT.RATE(%)	9(14) 64.29	12(28) 42.86	21(38) 55.26	17(30) 56.67
81 N CONT.RATE(%)	6(12) 50.00	16(24) 66.67	18(29) 62.07	19(30) 63.33
82 N CONT.RATE(%)	6(10) 60.00	16(19) 84.21	19(25) 76.00	17(29) 58.62
83 N CONT.RATE(%)	13(14) 92.86	19(25) 76.00	23(32) 71.88	25(31) 80.65
84 N CONT.RATE(%)	11(11) 100.00	19(21) 90.48	19(23) 82.61	20(30) 66.67
85 N CONT.RATE(%)	16(17) 94.12	21(22) 95.45	29(29) 100.00	28(31) 90.32
TOTAL N CONT.RATE(%)	61(78) 78.21	103(139) 74.10	129(176) 73.30	126(181) 69.61

Source: Derived from data provided by NPRDC.

TABLE 12B. POST-COMMISSIONING CONTINUATION RATE AND NUMBERS FOR NON-NAPS GRADUATES BY ORDER OR MERIT AND USNA CLASS

USNA CLASS	NON-NAPS			
	1-25%	26-50%	51-75%	76-100%
80 N CONT.RATE(%)	107(202) 52.97	80(169) 47.34	80(151) 53.69	41(80) 51.25
81 N CONT.RATE(%)	115(218) 52.75	111(205) 54.95	99(190) 52.11	37(84) 44.05
82 N CONT.RATE(%)	125(220) 56.82	117(202) 57.92	128(188) 68.09	82(150) 54.67
83 N CONT.RATE(%)	144(198) 72.73	139(198) 70.20	131(177) 74.01	96(133) 73.28
84 N CONT.RATE(%)	148(196) 75.51	138(175) 78.86	130(169) 76.92	76(102) 74.51
85 N CONT.RATE(%)	182(198) 91.92	158(178) 88.76	143(155) 92.26	114(135) 86.36
TOTAL N CONT.RATE(%)	821(1235) 66.64	743(1126) 66.10	711(1031) 69.16	446(681) 65.68

Source: Derived from data provided by NPRDC.

Notice also that among the NAPS sub-sample, individuals who graduated higher in their class exhibit a greater tendency to remain in the Navy than their classmates; in contrast, non-NAPS officers appear to have a fairly stable continuation rate, regardless of their order of merit. Tables 12A and 12B (and Figures 8A through 8D) support these findings.

h. Designator

Tables 13A1, 13A2, 13B1, and 13B2 (and Figures 9A through 9G) display the results of the analysis on Navy warfare communities. The comparison of only NAPS graduates reveals that NFOs are the most likely to remain on active duty, followed by Pilots, Supply Officers, persons in the OTHER category, Submariners, SWOs, and GURLs. The difference between the highest (87.5 percent for NFOs overall) and lowest (33.3 percent for GURLs overall) continuation rate in this category amounts to over 54 percentage points. The pattern for non-NAPS graduates is slightly different from that for NAPS; however, NFOs also commanded the highest rate in this sub-grouping.

The comparison of continuation rates for both the NAPS and non-NAPS groups yielded results that are similar to those in previous analyses described above. With the exception of GURLs and SWOs, who were approximately equal in terms of continuation rate, there were significant positive differences in performance for NAPS graduates in all other designators.

The largest disparity occurred for Supply Officers, where the rate for NAPS graduates exceeded that of their non-NAPS counterparts by 18.7 percentage points.

TABLE 13A1. CONTINUATION RATE AND NUMBERS FOR NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NAPS			
	GURL	SWO	SUB	PILOT
80 N CONT.RATE(%)	2(7) 28.57	9(29) 31.03	4(12) 33.33	14(23) 60.87
81 N CONT.RATE(%)	1(6) 16.67	18(28) 64.29	5(10) 50.00	11(18) 61.11
82 N CONT.RATE(%)	1(6) 16.67	16(25) 64.00	5(7) 71.43	16(20) 80.00
83 N CONT.RATE(%)	3(4) 75.00	13(24) 54.17	11(14) 78.57	28(30) 93.33
84 N CONT.RATE(%)	3(8) 37.50	12(18) 66.67	9(10) 90.00	27(27) 100.00
85 N CONT.RATE(%)	2(5) 40.00	35(36) 97.22	7(7) 100.00	27(27) 100.00
TOTAL N CONT.RATE(%)	12(36) 33.33	103(160) 64.38	41(60) 68.33	123(145) 84.83

Source: Derived from data provided by NPRDC.

TABLE 13A2. CONTINUATION RATE AND NUMBERS FOR NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NAPS		
	NFO	SUPPLY	OTHER
80 N CONT.RATE(%)	15(18) 83.33	4(5) 80.00	11(16) 68.75
81 N CONT.RATE(%)	9(13) 69.23	4(5) 80.00	11(15) 73.33
82 N CONT.RATE(%)	7(9) 77.78	2(3) 66.67	11(13) 84.62
83 N CONT.RATE(%)	17(17) 100.00	1(2) 50.00	7(11) 63.64
84 N CONT.RATE(%)	8(8) 100.00	6(8) 78.86	4(6) 66.67
85 N CONT.RATE(%)	7(7) 100.00	5(5) 100.00	11(12) 91.67
TOTAL N CONT.RATE(%)	63(72) 87.50	22(28) 78.57	55(73) 75.34

Source: Derived from data provided by NPRDC.

TABLE 13B1. CONTINUATION RATE AND NUMBERS FOR NON-NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NON-NAPS			
	GURL	SWO	SUB	PILOT
80 N CONT.RATE(%)	15(47) 31.91	53(104) 50.96	57(146) 39.04	66(117) 56.41
81 N CONT.RATE(%)	10(37) 27.03	80(149) 53.69	75(174) 43.86	73(141) 51.77
82 N CONT.RATE(%)	12(49) 24.49	97(178) 54.49	71(153) 46.41	123(158) 77.85
83 N CONT.RATE(%)	11(33) 33.33	90(141) 63.83	118(180) 65.56	117(121) 96.69
84 N CONT.RATE(%)	12(30) 40.00	117(178) 66.48	79(118) 66.95	109(109) 100.00
85 N CONT.RATE(%)	17(27) 62.96	180(204) 88.24	93(105) 91.18	116(116) 100.00
TOTAL N CONT.RATE(%)	77(223) 34.53	617(956) 64.81	493(870) 56.67	604(763) 79.27

Source: Derived from data provided by NPRDC.

TABLE 13B2. CONTINUATION RATE AND NUMBERS FOR NON-NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NON-NAPS		
	NFO	SUPPLY	OTHER
80 N CONT.RATE(%)	44(75) 58.67	8(16) 57.14	65(97) 67.01
81 N CONT.RATE(%)	57(82) 69.51	4(13) 30.77	63(101) 62.38
82 N CONT.RATE(%)	78(99) 78.79	9(19) 47.37	62(104) 59.62
83 N CONT.RATE(%)	89(93) 95.70	28(50) 56.00	57(86) 66.28
84 N CONT.RATE(%)	93(93) 100.00	18(28) 64.29	64(88) 72.73
85 N CONT.RATE(%)	82(82) 100.00	24(28) 100.00	85(104) 81.73
TOTAL N CONT.RATE(%)	443(524) 84.54	91(153) 59.87	396(584) 68.28

Source: Derived from data provided by NPRDC.

2. MEAN RECOMMENDED FOR EARLY PROMOTION (REP) RATE.

a. Complete Sample

The analysis of the average times an officer gets recommended for early promotion on the FITREP reveals contrasting results to those of the continuation rate analysis. Overall, the mean REP rate for non-NAPS graduates is 3.27 percentage points higher than the rate for NAPS graduates. Indeed, the REP rate for non-NAPS officers is generally higher than the rate for NAPS officers for each class of USNA graduates except 1982. The differences in REP rates are fairly small with the possible exception of 1985, where the rate for NAPS officers trails the rate for their non-NAPS counterparts by over 7 percentage points. Table 14 highlights these results.

TABLE 14. MEAN REP RATE AND NUMBERS FOR NAPS AND NON-NAPS GRADUATES IN THE COMPLETE SAMPLE BY USNA CLASS

USNA CLASS		NAPS	NON-NAPS
80	N MEAN REP	110 57.17	602 58.52
81	N MEAN REP	95 60.12	697 63.05
82	N MEAN REP	83 60.52	760 59.78
83	N MEAN REP	102 59.46	706 63.91
84	N MEAN REP	85 60.96	642 64.68
85	N MEAN REP	99 60.47	666 67.81
TOTAL	N MEAN REP	574 59.68	4073 62.95

Source: Derived from data provided by NPRDC.

b. Gender

As previously noted, due to the small numbers of women in the NAPS sample, caution must also be exercised when interpreting the results of the mean REP rate analysis. As seen in Table 15 (and Figures 11A and 11B), the total number of NAPS women included in this sub-sample is just 18, with just one woman in the 1980 and 1981 USNA classes and five or less in later year-groups. One should not, therefore, generalize from the results for NAPS women.

TABLE 15. MEAN REP RATE AND NUMBERS BY GENDER AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	MEN	WOMEN	MEN	WOMEN
80				
N	109	1	557	45
MEAN REP	57.28	80.00	58.61	57.36
81				
N	94	1	651	46
MEAN REP	59.64	77.00	62.74	66.73
82				
N	78	5	711	49
MEAN REP	60.11	66.80	59.70	61.82
83				
N	98	4	667	39
MEAN REP	58.43	84.75	63.83	64.46
84				
N	81	4	596	46
MEAN REP	61.22	58.25	63.95	73.15
85				
N	96	3	607	59
MEAN REP	60.80	50.00	67.13	74.86
TOTAL				
N	556	18	3789	284
MEAN REP	59.50	67.39	62.65	66.81

Source: Derived from data provided by NPRDC.

However, it is interesting to note that women in the non-NAPS sample, where the numbers are larger, consistently have a higher REP rate than both their NAPS and non-NAPS counterparts in every USNA class except 1980. These results are somewhat unexpected, based on a 1993 GAO study, titled "Naval Academy: Gender and Racial Disparities," which found that women had higher disciplinary and honor offense rates, in addition to having lower performance on midshipman officer and company officer rankings, when compared with men. The differences between the pre-commissioning performance of

women, relative to that of men, and the findings on REP rates cannot be explained here. Further research is required.

The results also reveal that non-NAPS men perform better than their counterparts from NAPS in the overall analysis. In fact, the REP rates for non-NAPS men are generally higher than the rates for NAPS men in all but one year (1982) included here.

c. Racial/Ethnic Group

Table 16 (and Figures 12A and 12B) present the mean REP scores for both white and nonwhite officers. As the results indicate, minority officers tend to perform significantly lower on this measure than white officers. The greatest difference between nonwhite and white officers are found for officers who did not attend NAPS (over ten percentage points); by contrast the difference between all nonwhite and white officers who attended NAPS is just over four percentage points. A recent study by GAO (1993) reports that minority students at USNA tend to lag in their performance when compared with whites. Specifically, minorities were found to have higher disciplinary, honor offense, and academic dismissal rates than whites. In fact, historically, in areas where a senior officer's perception of a minority's performance is involved, these minorities have generally not fared as well as their white counterparts. It is also interesting to note that, despite a lower tendency to earn higher REP rates, nonwhite NAPS officers generally

outperform other minority officers by a slight margin and thus tend to narrow the gap between the REP rates of white and nonwhite officers. Further, the difference between whites and nonwhites on this measure of performance tends to be somewhat smaller for nonwhite officers who attended NAPS when compared with their white, non-NAPS counterparts.

TABLE 16. MEAN REP RATE AND NUMBERS BY RACIAL/ETHNIC GROUP AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	WHITE	NONWHITE	WHITE	NONWHITE
80				
N	96	14	547	55
MEAN REP	57.81	55.33	59.59	47.84
81				
N	73	22	624	73
MEAN REP	59.97	60.60	64.11	53.86
82				
N	72	11	690	70
MEAN REP	61.47	54.27	61.30	45.40
83				
N	81	21	635	71
MEAN REP	60.15	56.80	64.41	58.92
84				
N	67	18	576	66
MEAN REP	62.18	56.94	65.16	59.79
85				
N	81	18	602	64
MEAN REP	62.53	51.22	69.17	55.11
TOTAL				
N	470	104	3673	400
MEAN REP	60.53	56.19	63.95	53.65

Source: Derived from data provided by NPRDC.

d. Recruited Athletes

As shown in Table 17, non-NAPS graduates tend to outperform NAPS graduates in both sub-groupings of recruited and non-recruited athletes. It is interesting to note that recruited athletes of both groups also outperform nonrecruit officers by a slight margin. Perhaps, as observed above, the team-building concept positively influenced the performance of former recruited athletes, as evidenced in their tendency to have somewhat higher REP rates.

TABLE 17. MEAN REP RATE AND NUMBERS BY RECRUITED ATHLETES AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	RECRUIT	NONRECRUIT	RECRUIT	NONRECRUIT
80				
N	37	73	148	454
MEAN REP	57.46	57.49	60.91	57.75
81				
N	39	56	166	531
MEAN REP	60.51	59.83	65.98	62.11
82				
N	28	55	180	580
MEAN REP	70.53	55.42	60.82	59.53
83				
N	26	76	151	555
MEAN REP	56.50	60.47	66.83	63.06
84				
N	29	56	166	476
MEAN REP	61.23	61.00	68.65	63.20
85				
N	30	69	141	525
MEAN REP	57.43	61.81	70.75	67.05
TOTAL				
N	189	385	944	3129
MEAN REP	60.44	59.40	65.51	62.16

Source: Derived from data provided by NPRDC.

e. Undergraduate Major

Table 18 shows that, overall, non-NAPS graduates with non-technical majors had the highest mean REP rate. Based on this criterion, non-NAPS officers also outperformed NAPS graduates, regardless of technical or nontechnical major. However, it should be noted that former NAPS students with technical majors generally outperformed other NAPS officers with non-technical majors by a small margin.

TABLE 18. MEAN REP RATE AND NUMBERS BY UNDERGRADUATE MAJOR AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	TECH	NONTECH	TECH	NONTECH
80				
N	88	22	496	106
MEAN REP	56.61	61.09	57.61	62.77
81				
N	81	14	571	126
MEAN REP	60.20	59.64	62.59	64.95
82				
N	67	16	635	125
MEAN REP	61.18	57.75	60.02	58.93
83				
N	83	19	572	134
MEAN REP	59.37	59.84	62.73	68.71
84				
N	70	15	521	121
MEAN REP	64.37	45.53	64.72	64.11
85				
N	78	21	551	115
MEAN REP	59.88	62.67	68.17	66.11
TOTAL				
N	467	107	3346	727
MEAN REP	60.06	58.31	62.63	64.34

Source: Derived from data provided by NPRDC.

f. Postgraduate Education

As previously stated, Cymrot (1986) found an increased probability of promotion for officers with postgraduate education. The results shown in Table 19 tend to echo Cymrot's findings. Officers who had some type of postgraduate education performed at essentially the same rate between NAPS and non-NAPS officers; but officers who had postgraduate education, regardless of attending NAPS, consistently outperformed their counterparts who had no postgraduate school experience.

TABLE 19. MEAN REP RATE AND NUMBERS BY POSTGRADUATE EDUCATION AND USNA CLASS

USNA CLASS	NAPS		NON-NAPS	
	POSTGRAD	NOPOSTGRAD	POSTGRAD	NOPOSTGRAD
80				
N	27	83	138	464
MEAN REP	63.67	55.56	76.77	53.19
81				
N	15	80	148	549
MEAN REP	66.67	58.89	76.81	59.38
82				
N	13	70	116	644
MEAN REP	75.23	57.79	69.58	58.09
83				
N	13	89	125	581
MEAN REP	80.31	56.42	75.93	61.32
84				
N	6	79	72	570
MEAN REP	62.33	60.99	76.22	63.15
85				
N	4	95	54	612
MEAN REP	81.25	59.60	75.66	60.56
TOTAL				
N	78	496	644	3429
MEAN REP	69.74	58.18	69.58	61.24

Source: Derived from data provided by NPRDC.

g. Order of Merit

The pre-commissioning analysis in this study suggested that, on average, NAPS students graduate lower in their class than non-NAPS graduates. This being the case, one would expect a less than equal performance from these officers in terms of their mean REP rate. However, quite to the contrary, although NAPS officers have a slightly lower REP rate than their counterparts, in the overall analysis, these officers performed almost equally.

In looking at specific USNA classes, several large disparities can be found in both directions, which is surprising. Still, as seen in Table 20, one can generally conclude that the higher the order of merit, the higher the performance on mean REP score for the officer.

TABLE 20A. POST-COMMISSIONING MEAN REP RATE AND NUMBERS FOR NAPS GRADUATES BY ORDER OF MERIT AND USNA CLASS

USNA CLASS	NAPS			
	1-25%	26-50%	51-75%	76-100%
80 N MEAN REP	14 69.35	28 65.79	38 50.30	30 53.61
81 N MEAN REP	12 73.66	24 67.46	29 61.55	30 47.43
82 N MEAN REP	10 79.30	19 59.21	25 66.08	29 50.10
83 N MEAN REP	14 67.21	25 68.96	32 53.84	31 54.10
84 N MEAN REP	11 67.72	21 59.48	23 62.54	30 58.60
85 N MEAN REP	17 69.41	22 58.82	29 63.62	31 53.80
TOTAL N MEAN REP	78 70.69	139 63.71	176 58.76	181 52.97

Source: Derived from data provided by NPRDC.

TABLE 20B. POST-COMMISSIONING MEAN REP RATE AND NUMBERS FOR NON-NAPS GRADUATES BY ORDER OR MERIT AND USNA CLASS

USNA CLASS	NON-NAPS			
	1-25%	26-50%	51-75%	76-100%
80 N MEAN REP	202 66.65	169 57.81	151 55.65	80 44.86
81 N MEAN REP	218 71.03	205 62.28	190 58.82	84 53.66
82 N MEAN REP	220 69.29	202 62.04	188 53.67	150 50.70
83 N MEAN REP	198 75.09	198 65.16	177 57.34	133 53.95
84 N MEAN REP	196 71.47	175 65.31	169 60.55	102 56.86
85 N MEAN REP	198 75.82	178 66.22	155 68.31	135 57.33
TOTAL N MEAN REP	1235 71.49	1126 63.16	1031 58.90	681 53.22

Source: Derived from data provided by NPRDC.

h. Designator

Tables 21A1-21A2, 21B1-21B2 (and Figures 17A through 17G) present the mean REP scores for all the warfare communities. NAPS officers, overall, exhibit a tendency to perform less successfully than other officers. Still, the largest differences between NAPS and non-NAPS officers by community are typically small: about four percentage points, overall, for both SWOs and GURLs. The lone exceptions here occur for Supply officers, where NAPS graduates have an overall REP rate that is over 10 percentage points lower than the rate for their non-NAPS counterparts. There is no clear explanation for this particularly large difference in performance.

TABLE 21A1. MEAN REP RATE AND NUMBERS FOR NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NAPS			
	GURL	SWO	SUB	PILOT
80 N MEAN REP	7 31.57	29 52.51	12 63.33	23 58.83
81 N MEAN REP	6 60.83	28 55.61	10 69.20	18 56.28
82 N MEAN REP	6 26.00	25 57.96	7 72.00	20 63.95
83 N MEAN REP	4 62.75	24 54.92	14 73.29	30 53.17
84 N MEAN REP	8 37.38	18 64.78	10 79.10	27 55.57
85 N MEAN REP	5 29.40	36 62.64	7 81.00	27 52.29
TOTAL N MEAN REP	36 39.97	160 57.92	60 72.33	145 56.21

Source: Derived from data provided by NPRDC.

TABLE 21A2. MEAN REP RATE AND NUMBERS FOR NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NAPS		
	NFO	SUPPLY	OTHER
80 N MEAN REP	18 64.38	5 68.40	16 62.44
81 N MEAN REP	13 57.92	5 86.20	15 60.00
82 N MEAN REP	9 73.89	3 85.67	13 54.85
83 N MEAN REP	17 57.47	2 62.50	11 70.27
84 N MEAN REP	8 64.38	8 79.38	6 48.57
85 N MEAN REP	7 59.71	5 89.60	12 61.67
TOTAL N MEAN REP	72 61.38	28 79.92	73 60.49

Source: Derived from data provided by NPRDC.

TABLE 21B1. MEAN REP RATE AND NUMBERS FOR NON-NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NON-NAPS			
	GURL	SWO	SUB	PILOT
80 N MEAN REP	47 39.87	104 57.30	146 68.58	117 54.65
81 N MEAN REP	37 44.62	149 65.21	174 70.26	141 54.46
82 N MEAN REP	49 39.22	178 56.40	153 72.29	158 58.21
83 N MEAN REP	33 35.67	141 60.76	180 75.31	121 60.93
84 N MEAN REP	30 54.70	178 64.29	118 75.25	109 62.82
85 N MEAN REP	27 57.04	204 66.46	105 82.12	116 63.20
TOTAL N MEAN REP	223 43.97	956 62.14	870 73.44	763 58.83

Source: Derived from data provided by NPRDC.

TABLE 21B2. MEAN REP RATE AND NUMBERS FOR NON-NAPS GRADUATES BY DESIGNATOR AND USNA CLASS

USNA CLASS	NON-NAPS		
	NFO	SUPPLY	OTHER
80 N MEAN REP	75 55.96	16 65.21	97 59.40
81 N MEAN REP	82 68.90	13 62.50	101 61.43
82 N MEAN REP	99 64.19	19 69.26	104 53.66
83 N MEAN REP	93 64.55	50 65.78	86 58.22
84 N MEAN REP	93 63.00	28 69.71	88 57.62
85 N MEAN REP	82 58.99	28 81.21	104 67.80
TOTAL N MEAN REP	524 62.80	153 69.40	584 59.79

Source: Derived from data provided by NPRDC.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This study sought to examine the relationship between selected measures of officer performance and being a NAPS graduate from USNA. To accomplish the study objectives, NAPS officers were compared with their non-NAPS counterparts who graduated from USNA. Additional demographic, educational experience, and Navy experience variables were added to the analysis to provide a more complete picture of the factors related to performance.

The NPRDC USNA Longitudinal Officer Data Base was used to assemble the research sample that included Navy officers (as of June 1990) who graduated from the Academy in 1980 through 1985.

Two criteria were established for measuring the officer performance of these individuals: 1) Continuation Rate; and 2) Recommendation for Early Promotion (REP) Rate. Additionally, an analysis of the pre-commissioning performance (order of merit) of USNA graduates was included as a possible predictor of subsequent officer performance. A number of tables and figures were then produced that contained the overall continuation and REP rates by NAPS/non-NAPS attendance as well as selected background characteristics.

The preceding analyses suggest that there are apparent differences in the performance of USNA graduates who did and did not attend NAPS. However, it is important to note that the number of officers in the NAPS sample is relatively small, especially when segmented by subgroups, and caution should be exercised in interpreting the results. The following conclusions are drawn from the analysis based upon the primary and secondary research questions of this thesis.

1. Continuation Rate

NAPS graduates, overall, have a continuation rate that is 6.2 percentage points higher than the rate for USNA officers who did not attend NAPS. This finding may relate to the fact that NAPS graduates are usually between one and five years more mature than non-NAPS officers and they had to work an extra year in school to achieve the same goal of graduation and commission as a Naval officer. These factors may give NAPS graduates a greater sense of commitment toward a naval career and thus cause them to remain on active duty longer than their other academy mates.

Due to the small sample of NAPS women (18), no reasonable conclusion about their performance can be made. Still, the results indicate that the continuation rate of NAPS women is much higher than USNA women without prep school experience.

Minority officers from NAPS remain on active duty longer (by a slight amount) than any other subgroup examined here.

One would expect this to be the case, due to the problems that minorities face in getting hired in the civilian workplace; however, the results also indicate that non-NAPS minority officers tend to leave the Navy at a rate that is higher than the rate of white officers, regardless of NAPS status, as well as other minorities who attended NAPS. This is quite surprising.

NAPS recruited athletes have a higher continuation rate than recruited athletes who did not attend NAPS. On the other hand, officers without a background in organized sports tend to remain in the service longer than those who do (recruited athletes), which is somewhat unexpected. It is reasonable to assume that the teamwork concept fostered in sports would somehow carry over into the military, which idealizes the same principle, and result in longer continuation rates.

Other factors such as undergraduate major, USNA order of merit, and warfare community all suggest that, in a majority of the cases, NAPS graduates remain on active duty longer than their non-NAPS counterparts. However, NAPS officers with a postgraduate education are less likely to stay when compared with similarly-educated, non-NAPS graduates of USNA.

2. Mean REP Rate

In the overall case, NAPS officers are outperformed by non-NAPS graduates with respect to recommended for early promotion (REP). Over the years examined, this trend remains consistent and occasionally quite strong.

The number of women in the NAPS sample does not permit one to draw definitive conclusions. Based upon the non-NAPS sample, however, women are found to receive a higher rate of recommendations for early promotion than their male counterparts.

The mean REP rate for minority officers is clearly lower than the rate for white officers regardless of NAPS status. At the same time, nonwhite NAPS graduates outperform their non-NAPS counterparts; the net result is that the "racial gap" is narrowed between nonwhite NAPS officers and white officers who graduated from USNA.

Recruited athletes from NAPS are less likely to earn a high REP score than their counterparts who did not attend NAPS. Non-NAPS recruited athletes have a mean REP rate that generally exceeds that of non-athletes.

On the measure of postgraduate education and USNA order of merit, there is no significant difference in performance.

Undergraduate major and warfare community analyses show performance differences that favor non-NAPS graduates in a majority of the cases.

In summary, although a NAPS graduate tends to remain in the Navy longer than a non-NAPS graduate, his or her performance on the FITREP (as determined solely by REP) tends to be less successful. It is important to note, however, that every officer included in this study is a graduate of USNA, which is a premier institution and one of the most highly selective

colleges in the country. USNA graduates tend to be regarded as the "elite" of the Navy's officer corps, and studies that compare the performance of officers from all the commissioning sources tend to point this out.

B. RECOMMENDATIONS

Before any decisions are made concerning the future of the NAPS program, more research should be undertaken using additional measures of performance as part of a larger cost-benefit analysis. There were shortcomings in the methodology, but, for the most part, they did not significantly detract from the nature of generalizable results. For example, given that this method closely resembled the one used in Neumann's (1992) study, there appear to be limitations in the current study's results due to the fact that the criterion, USNA class, was used to break down the particular groups. In terms of mean REP score, Neumann's method used officer grade levels to point out the fact that as an officer progresses in rank, the number of times he or she is recommended for early promotion increases. (Neumann, 1992) Since this study only included the year in which an individual graduated from USNA, it was difficult to identify this trend. For example, the USNA class of 1980 in the sample included LTs and LCDRs. This was done because, based on the author's experience while at USNA, the competitive nature exhibited between year groups was intriguing enough to warrant an analysis of the subsequent

officer performance.

Refinements in the methodology used in this study might include the following:

1. Examine the REP scores for the same sample of officers taking into consideration the grade level of the individual.

2. Divide the sub-samples into further groupings, such as minority recruited athletes or women with postgraduate education, etc., to analyze performance in greater depth.

3. Include information about NAPS graduates from USNA classes 1971-77 to gain a better perspective on the continuation rates of more senior officers.

4. Compare the performance of NAPS graduates with the performance of officers from other commissioning sources to determine the contribution or importance of NAPS within a broader context and to assist in the determination of the correct mix of officers from all commissioning sources.

Since one of the primary purposes of the NAPS program is to prepare minorities for entrance into USNA, the apparent differences in racial/ethnic group performance found in this study need to be analyzed further for clarification and possible explanation.

In closing, based upon the historical performance of its graduates, the NAPS program should forever continue to provide USNA with quality midshipmen. Monetary constraints are a pressing issue in the military's future, but every effort

should be made to maintain the effectiveness of a program that offers the Navy and the nation a quality resource bank to draw upon for producing the world's finest officers.

APPENDIX A

CHARACTERISTICS OF THE OFFICERS IN THE STUDY

CHARACTERISTICS OF OFFICERS IN THE STUDY

CATEGORY	NAPS N	NAPS %	NON-NAPS N	NON-NAPS %	TOTAL N	TOTAL %
GENDER						
MEN	556	12.80	3789	87.20	4345	93.50
WOMEN	18	5.96	284	94.04	302	6.50
RACE						
WHITE	470	11.34	3673	88.66	4143	89.15
NONWHITE	104	20.63	400	79.73	504	10.65
RECRUIT.ATHLETE						
RECRUIT	189	16.68	944	83.32	1133	24.38
NON-RECRUIT	385	10.96	3129	89.04	3514	75.62
USNA CLASS						
1980	110	15.45	602	84.55	712	15.32
1981	95	11.99	697	88.01	792	17.04
1982	83	9.85	760	90.15	843	18.14
1983	102	12.62	706	87.38	808	17.39
1984	85	11.69	642	88.31	727	15.64
1985	99	12.94	666	87.06	765	16.46
MAJOR						
TECHNICAL	467	12.24	3346	87.75	3813	82.05
NONTECHNICAL	107	12.83	727	87.17	834	17.94
POSTGRADUATE ED						
POSTGRADUATE	78	10.80	644	89.20	722	15.54
NOPOSTGRADUATE	496	12.64	3429	87.36	3925	87.36

Source: Derived from data provided by NPRDC.

CHARACTERISTICS OF OFFICERS IN THE STUDY (cont.)

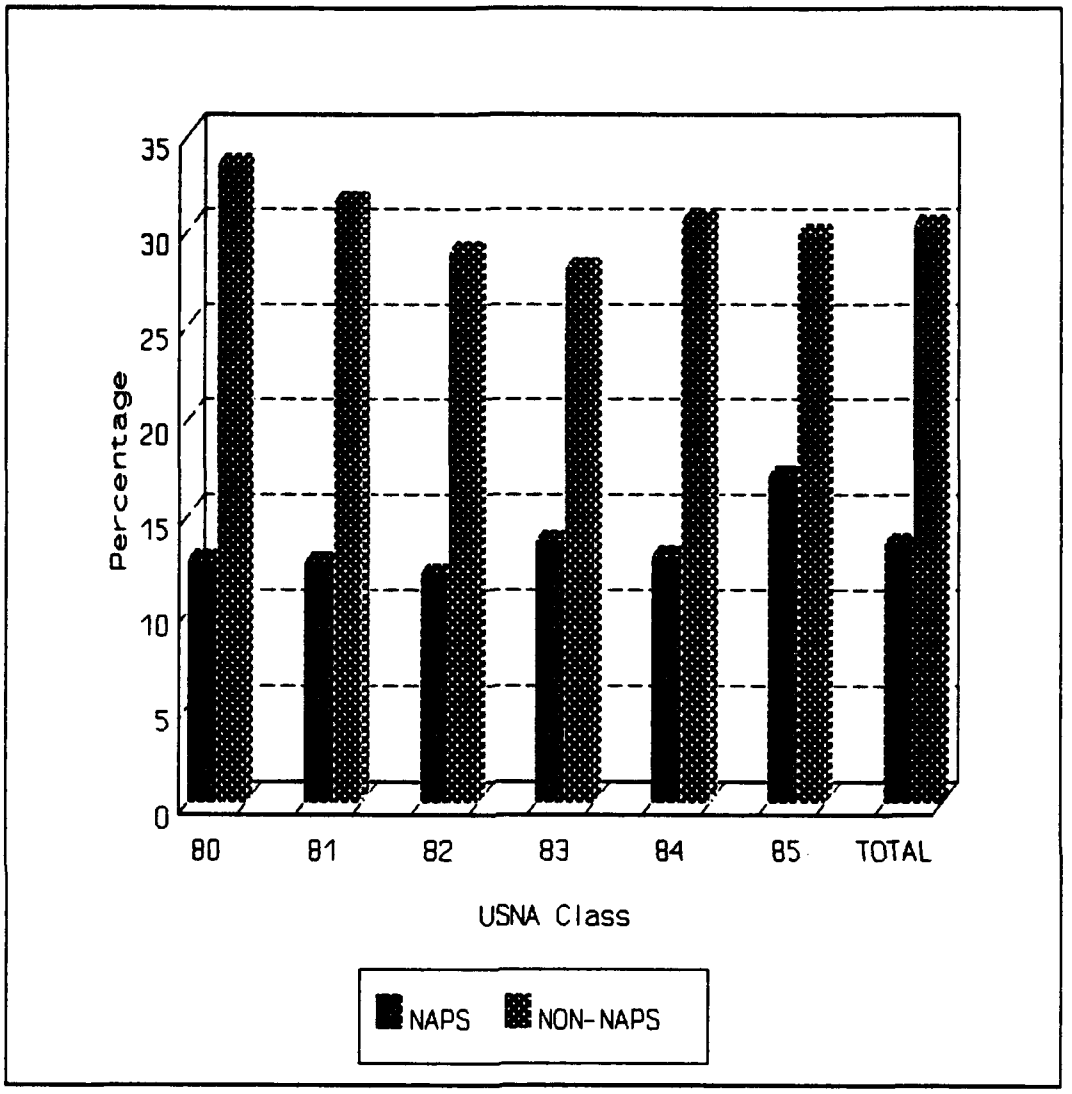
CATEGORY	NAPS N	NAPS %	NON-NAPS N	NON-NAPS %	TOTAL N	TOTAL %
ORDER OF MERIT						
1-25% OF CLASS	78	5.94	1235	94.06	1313	28.25
26-50% OF CLASS	139	10.99	1126	89.01	1265	27.22
51-75% OF CLASS	176	14.58	1031	85.42	1207	25.97
76-100%OF CLASS	181	21.00	681	79.00	862	18.55
DESIGNATORS						
GURL	36	13.90	223	86.10	259	5.57
SWO	160	14.34	956	85.66	1116	24.02
SUB	60	6.45	870	93.55	930	20.01
PILOT	145	15.97	763	84.03	908	19.54
NFO	72	12.08	524	87.92	596	12.83
SUPPLY	28	15.47	153	84.53	181	3.89
OTHER	73	11.12	584	88.88	657	14.14

Source: Derived from data provided by NPRDC.

APPENDIX B

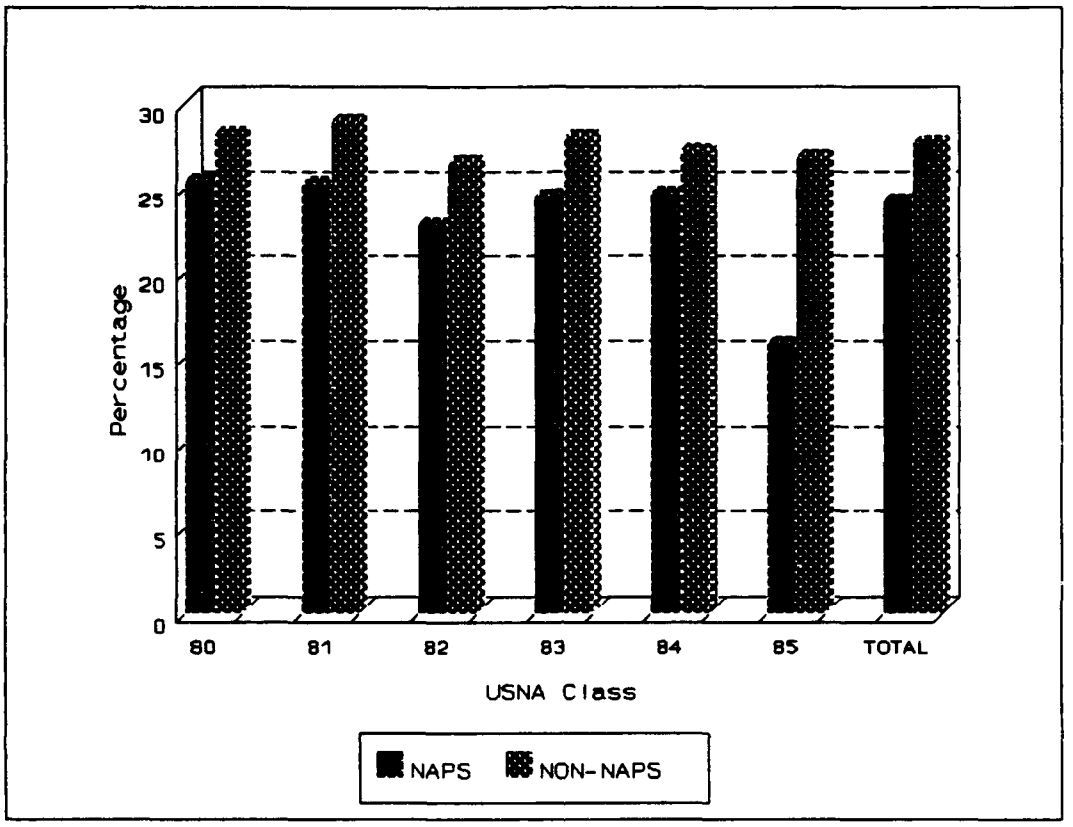
PRE-COMMISSIONING PERFORMANCE

Figures 1A through 1D give the results from the cross-tabulations run on the officer sample in terms of pre-commissioning performance in terms of order of merit by USNA class.



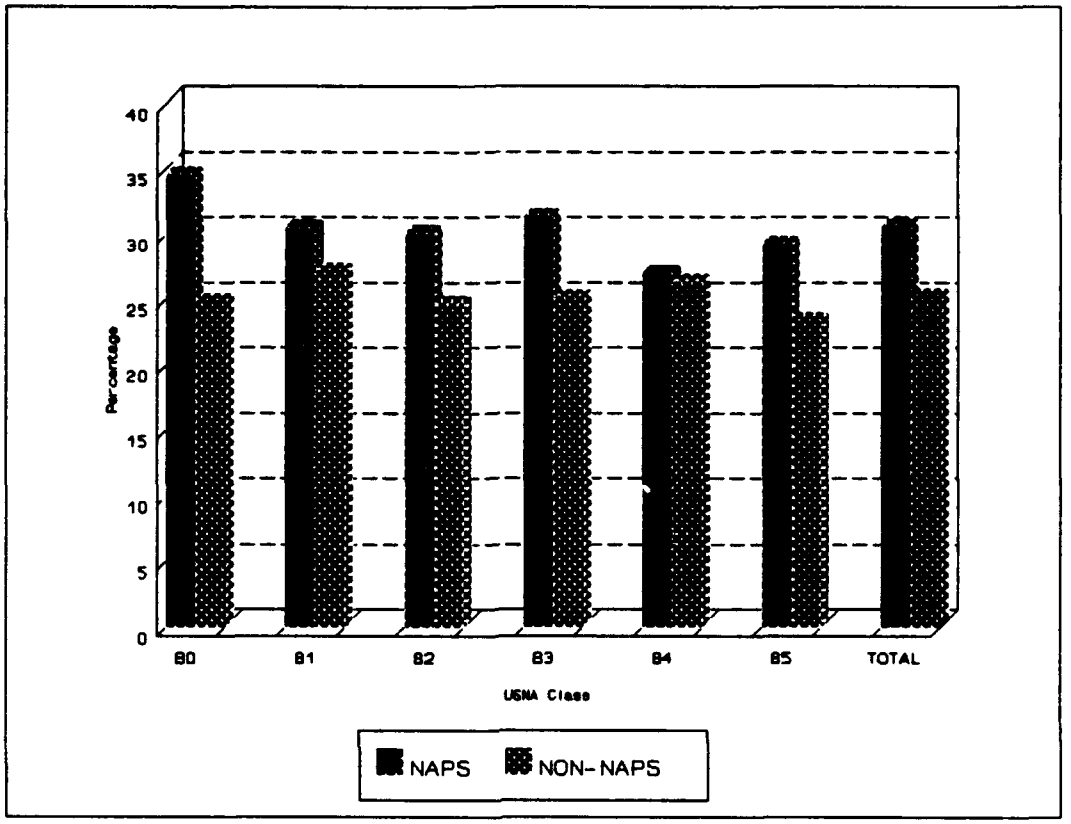
Source: Derived from data provided by NPRDC.

Figure 1A. Percentage of USNA Graduates in 1-25% of Class by USNA Class.



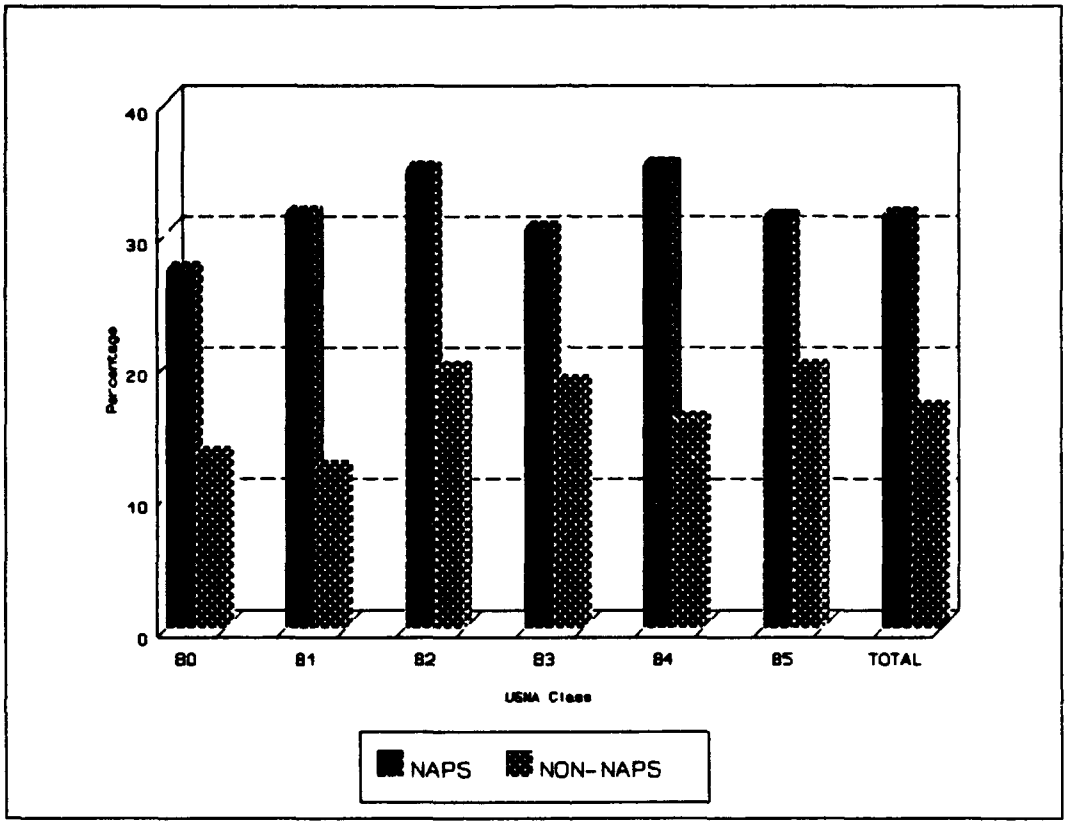
Source: Derived from data provided by NPRDC.

Figure 1B. Percentage of USNA Graduates in 26-50% of Class by USNA Class.



Source: Derived from data provided by NPRDC.

Figure 1C. Percentage of USNA Graduates in 51-75% of Class by USNA Class.



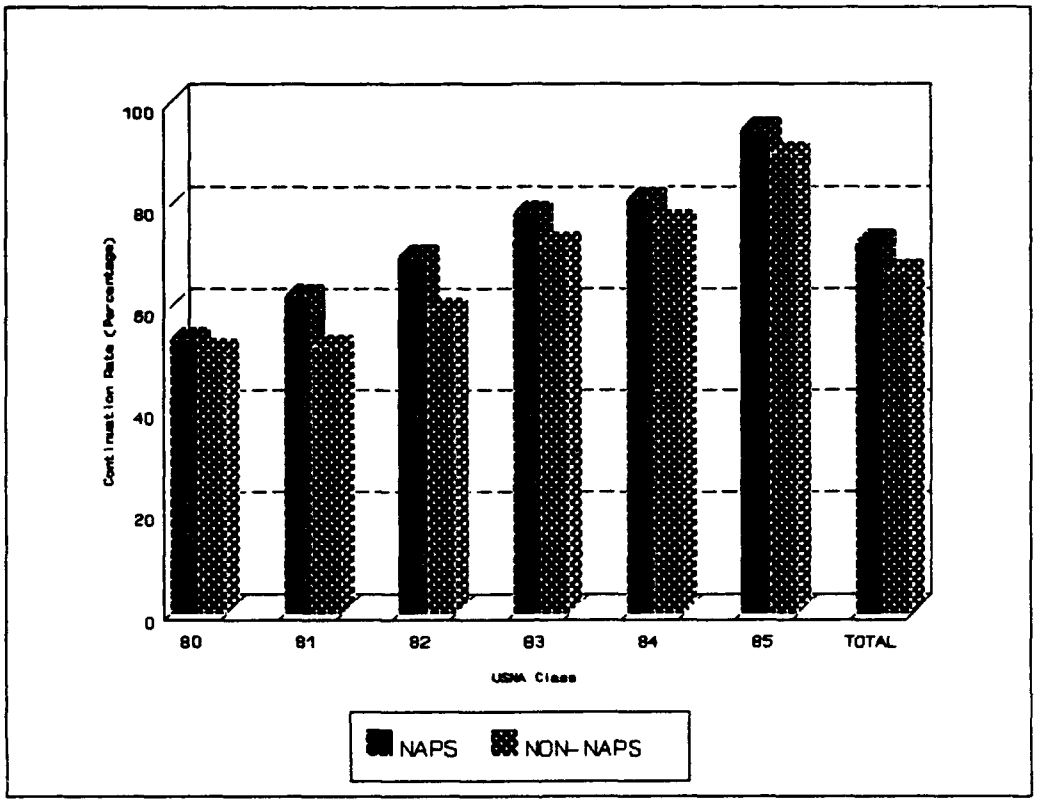
Source: Derived from data provided by NPRDC.

Figure 1D. Percentage of USNA Graduates in 76-100% of Class by USNA Class.

APPENDIX C

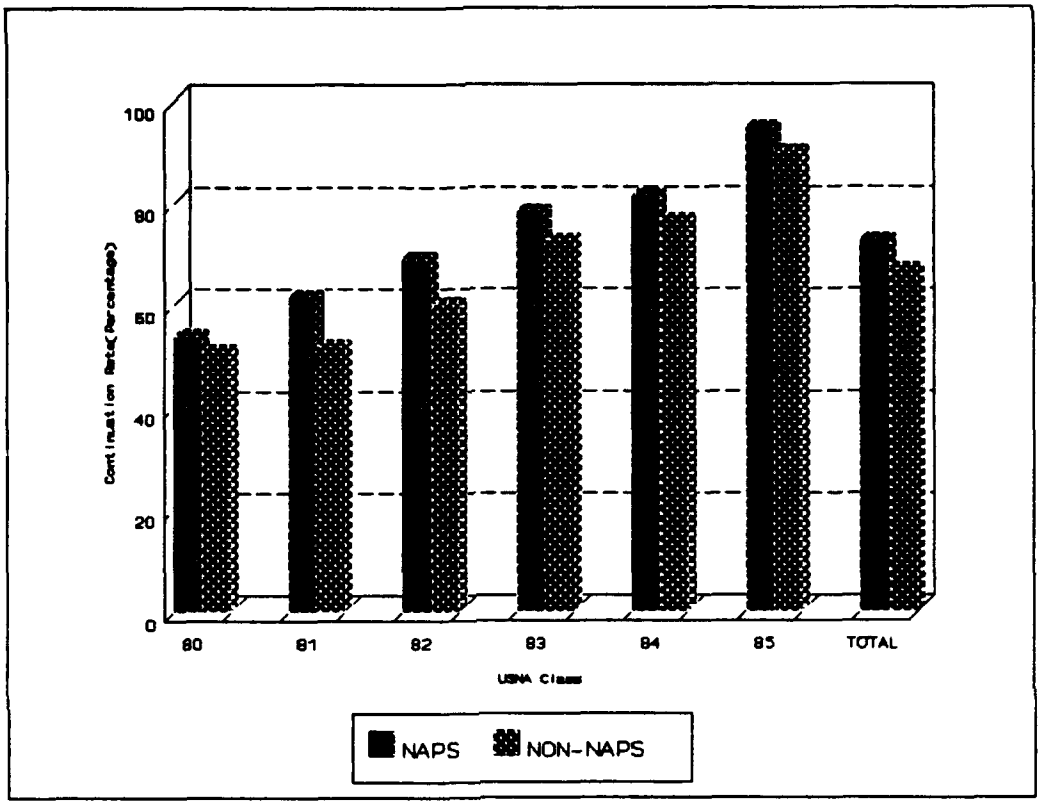
CONTINUATION RATE

Figures 2 through 9G present the results of the continuation rate analyses also depicted in Tables 6 through 10B2.



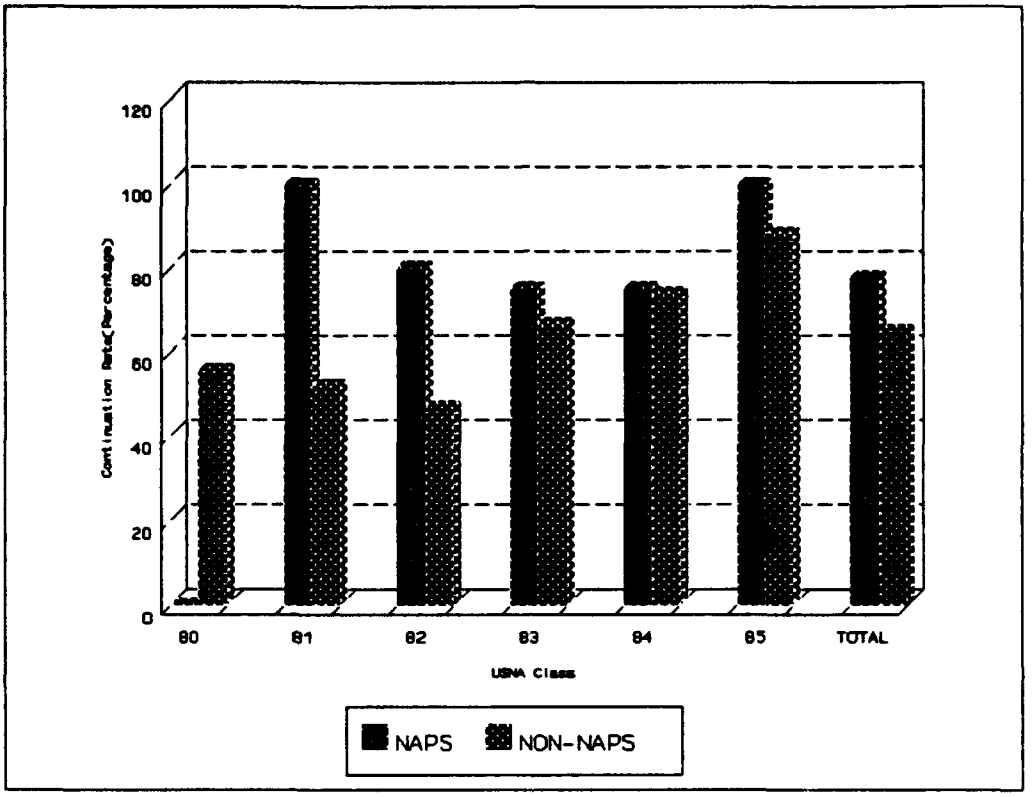
Source: Derived from data provided by NPRDC.

Figure 2. Continuation Rate for NAPS and Non-NAPS Graduates in the Complete Sample by USNA Class.



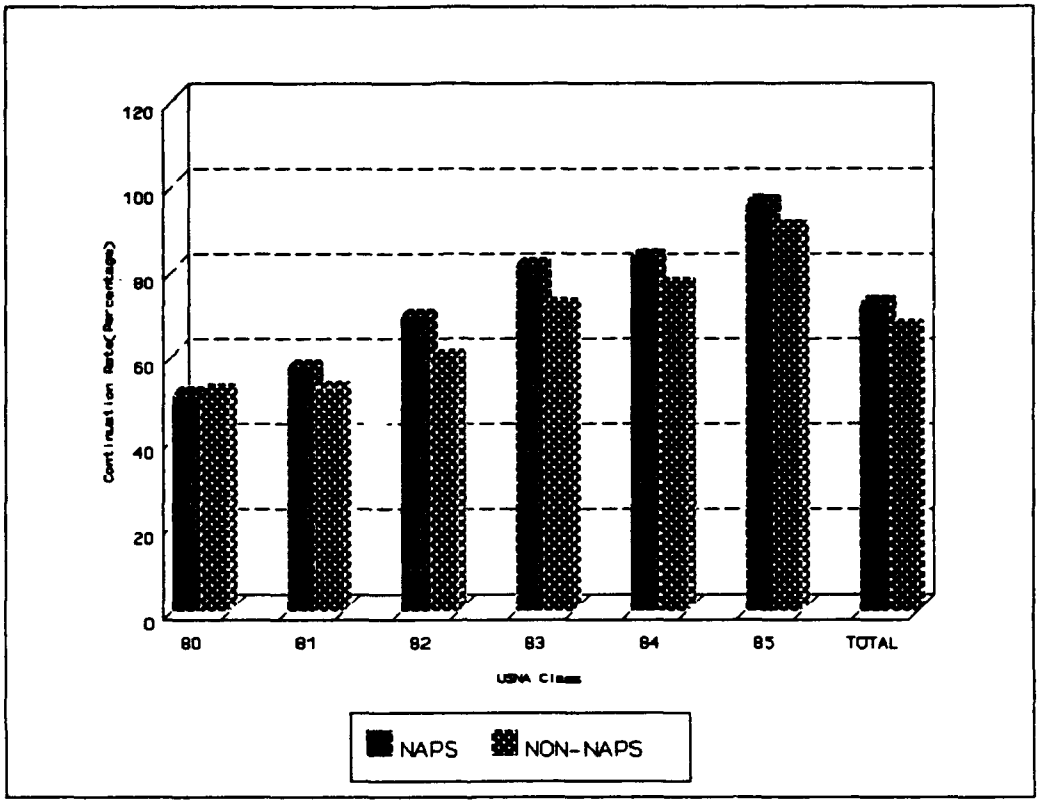
Source: Derived from data provided by NPRDC.

Figure 3A. Continuation Rate by USNA Class: Male Officers.



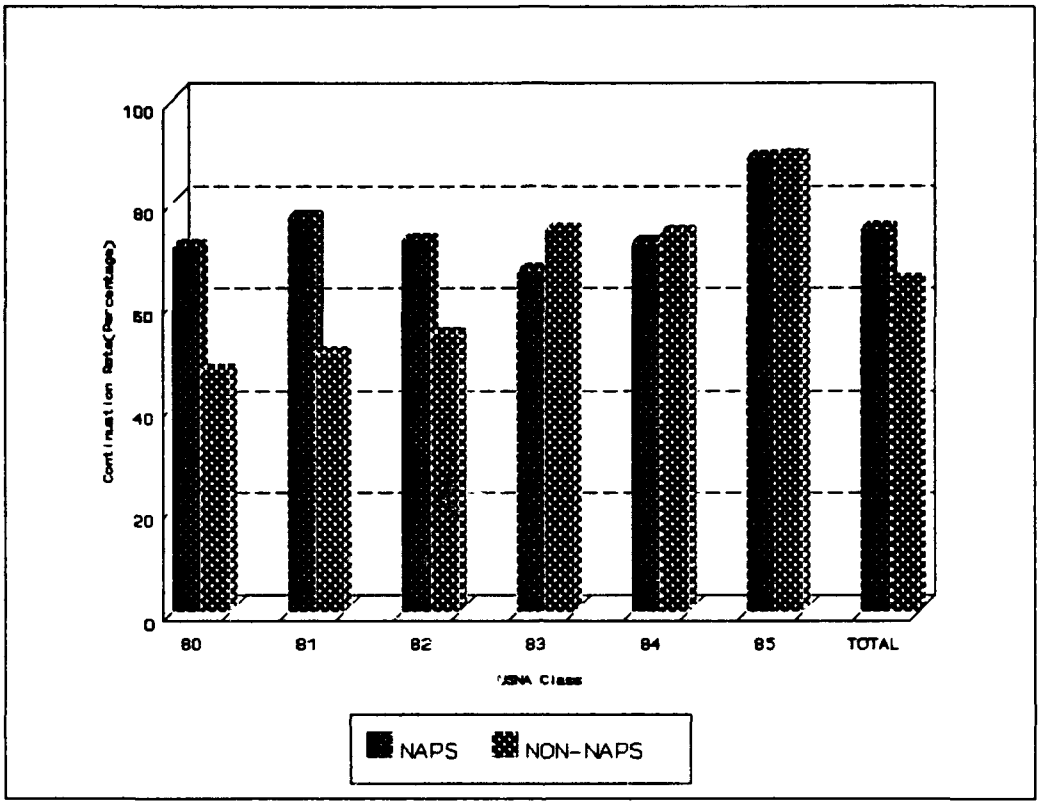
Source: Derived from data provided by NPRDC.

Figure 3B. Continuation Rate by USNA Class: Female Officers.



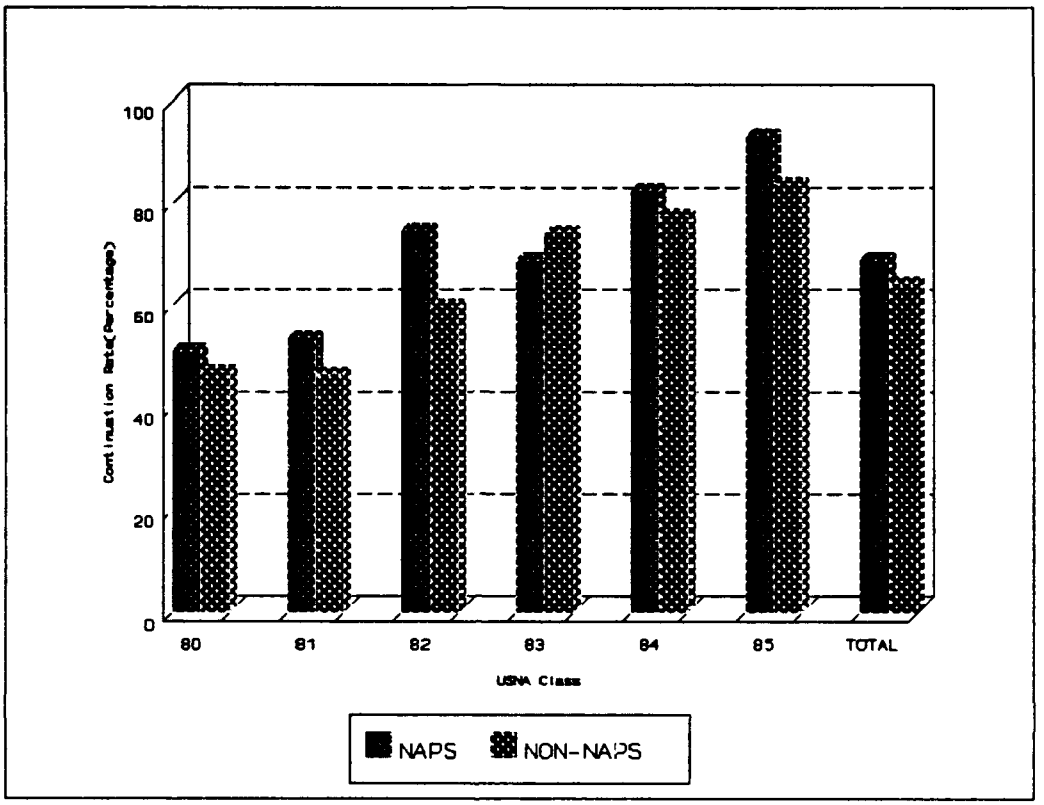
Source: Derived from data provided by NPRDC.

Figure 4A. Continuation Rate by USNA Class: White Officers.



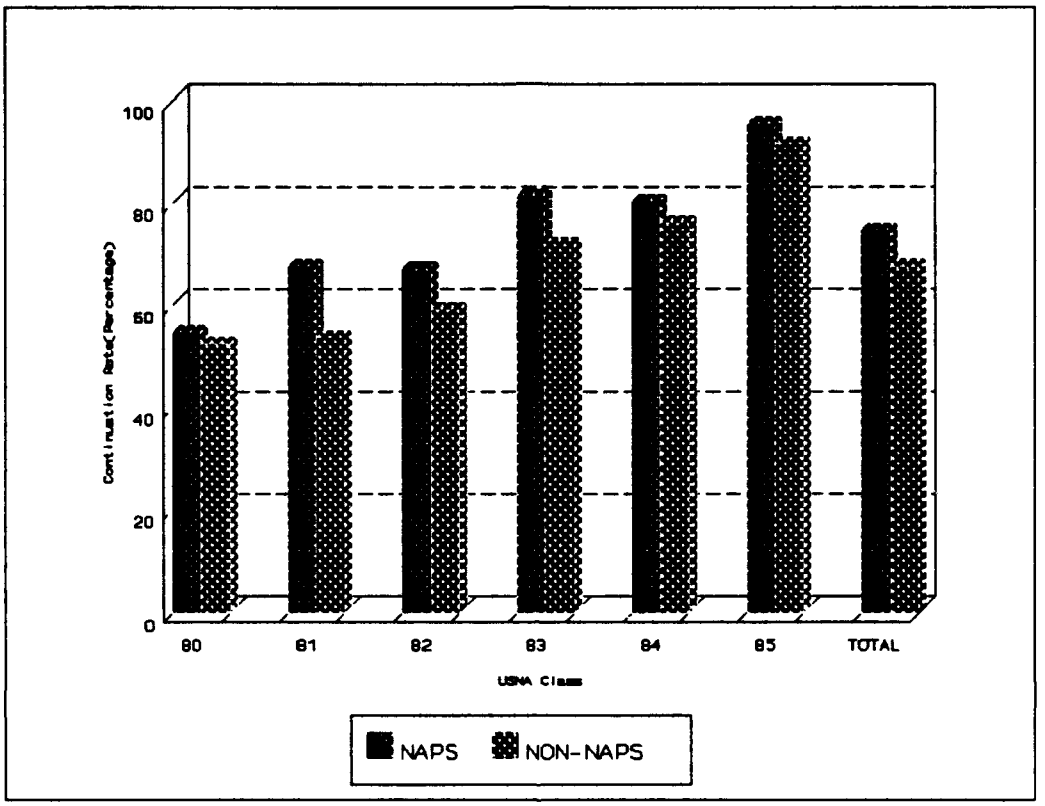
Source: Derived from data provided by NPRDC.

Figure 4B. Continuation Rate by USNA Class: Nonwhite Officers.



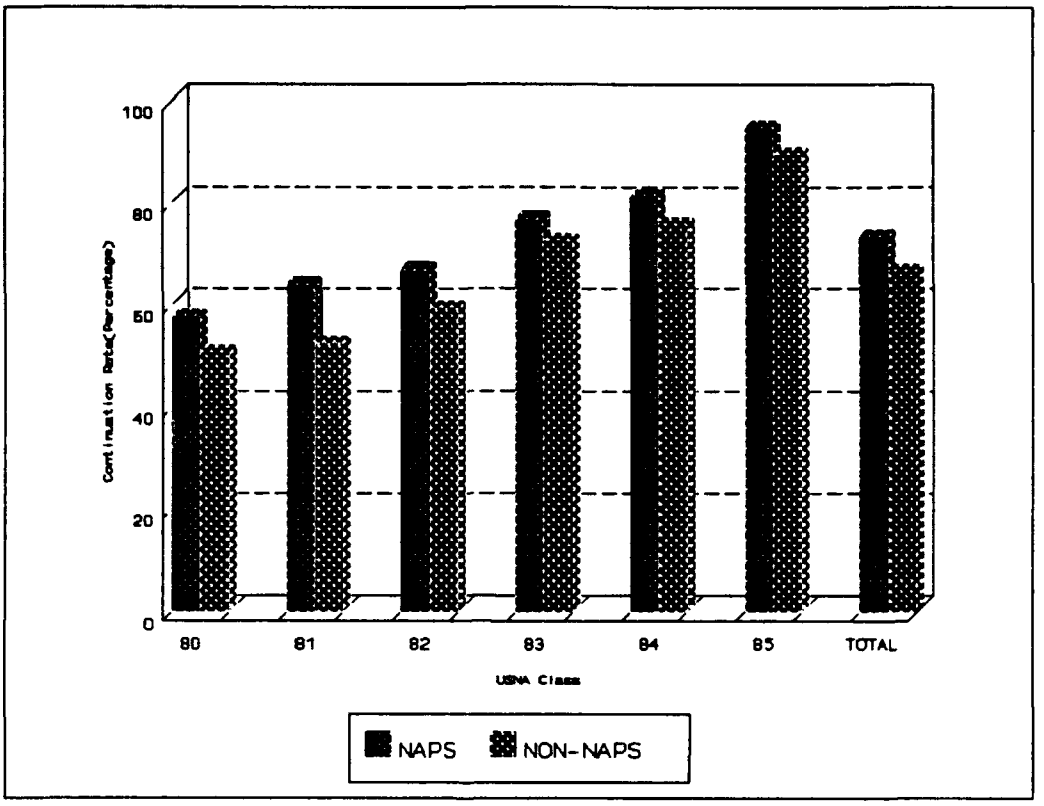
Source: Derived from data provided by NPRDC.

Figure 5A. Continuation Rate by USNA Class: Recruited Athletes.



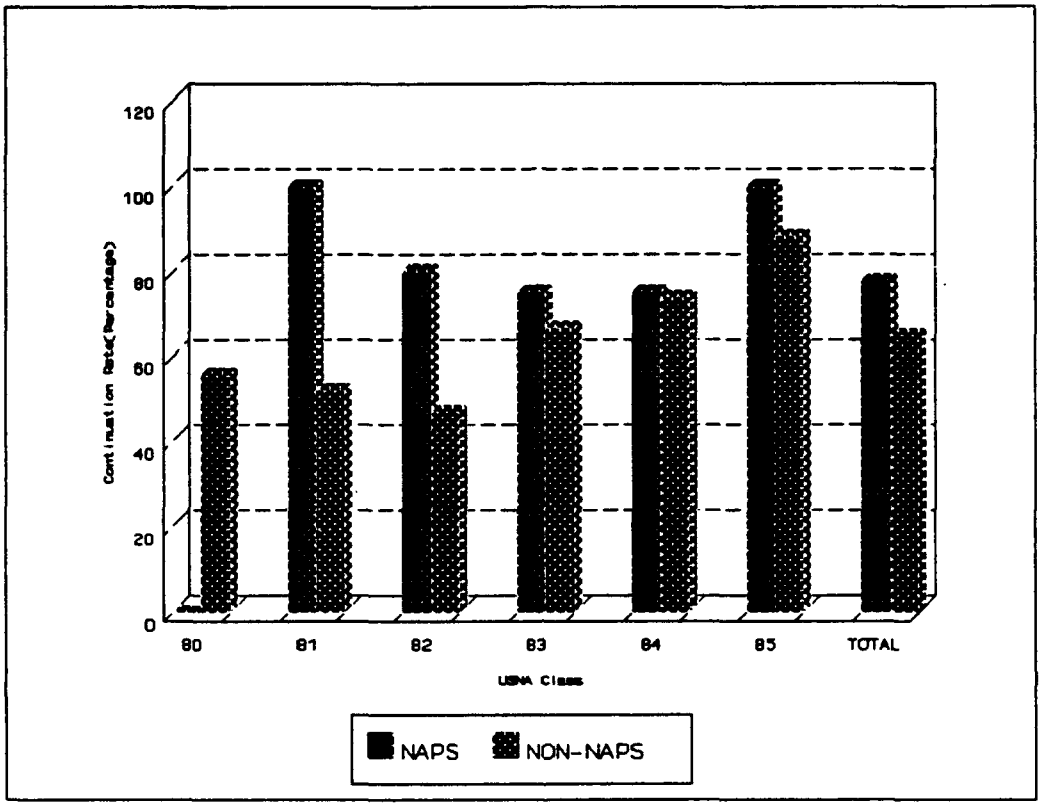
Source: Derived from data provided by NPRDC.

Figure 5B. Continuation Rate by USNA Class: Non-Recruited Athletes.



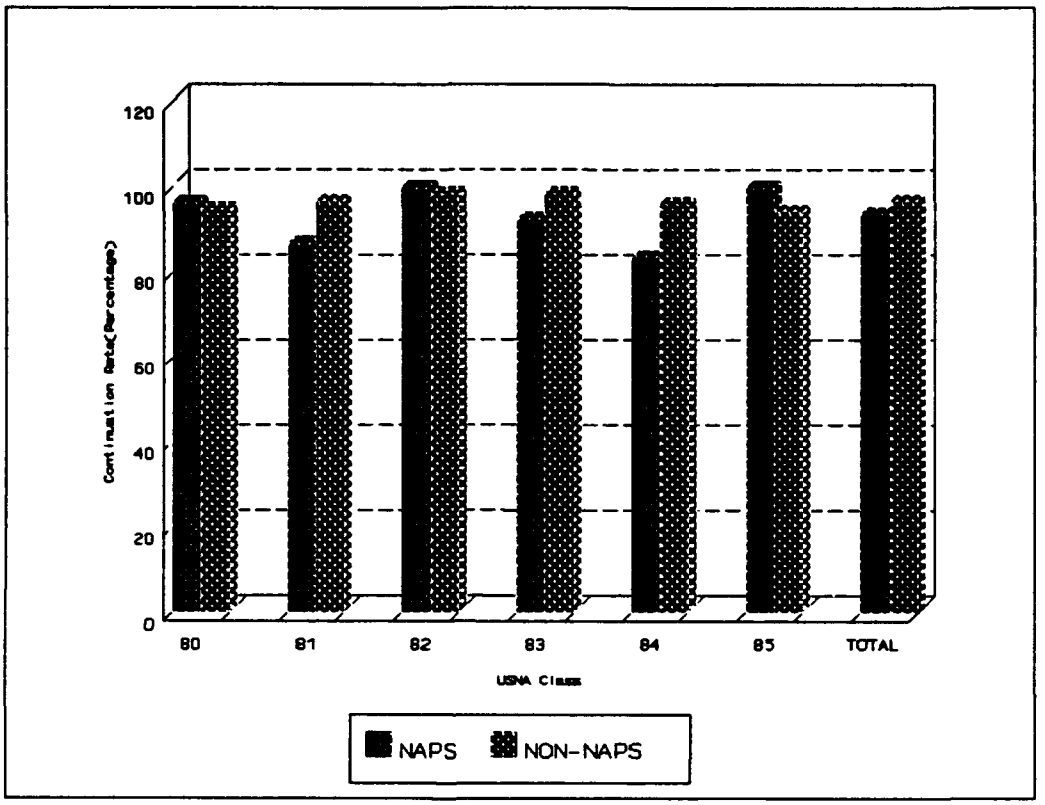
Source: Derived from data provided by NPRDC.

Figure 6A. Continuation Rate by USNA Class: Technical Majors.



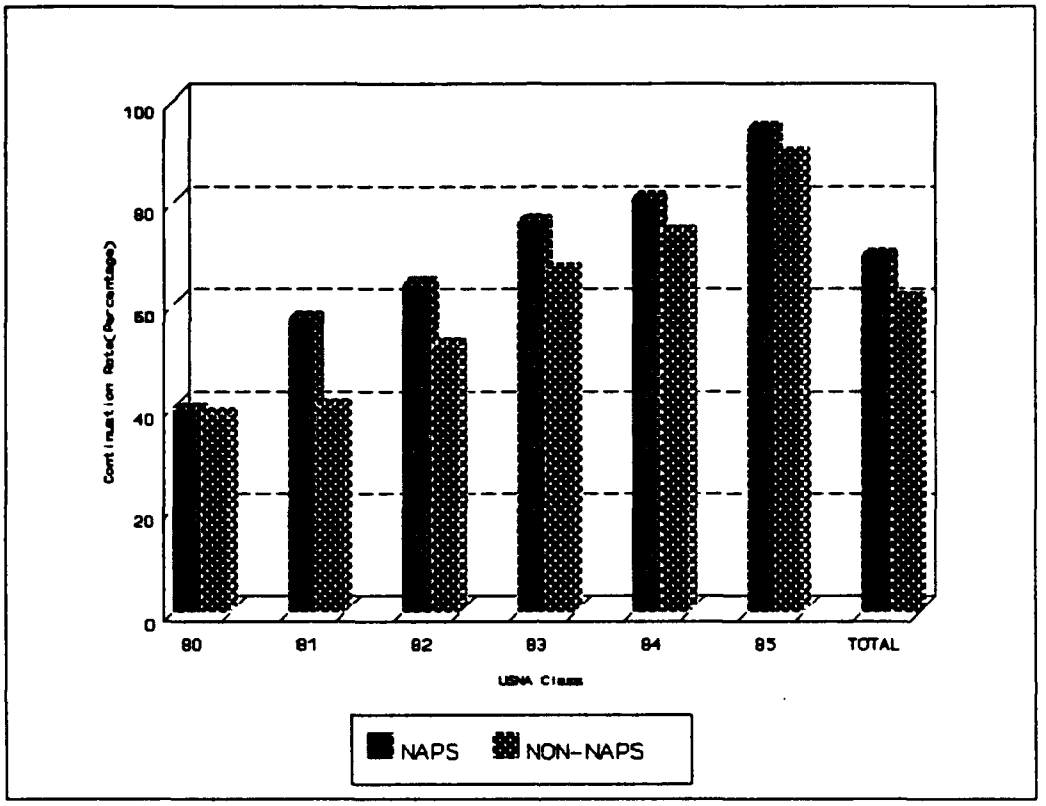
Source: Derived from data provided by NPRDC.

Figure 6B. Continuation Rate by USNA Class: Non-Technical Majors.



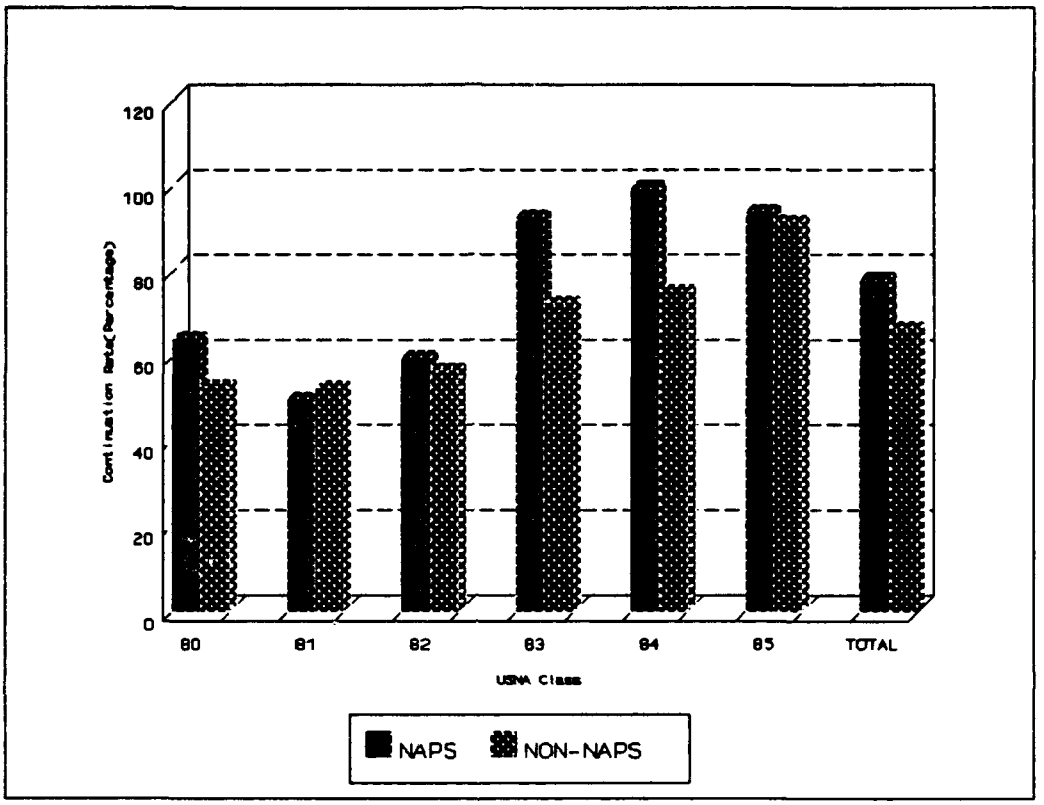
Source: Derived from data provided by NPRDC.

Figure 7A. Continuation Rate by USNA Class: Postgraduate Education.



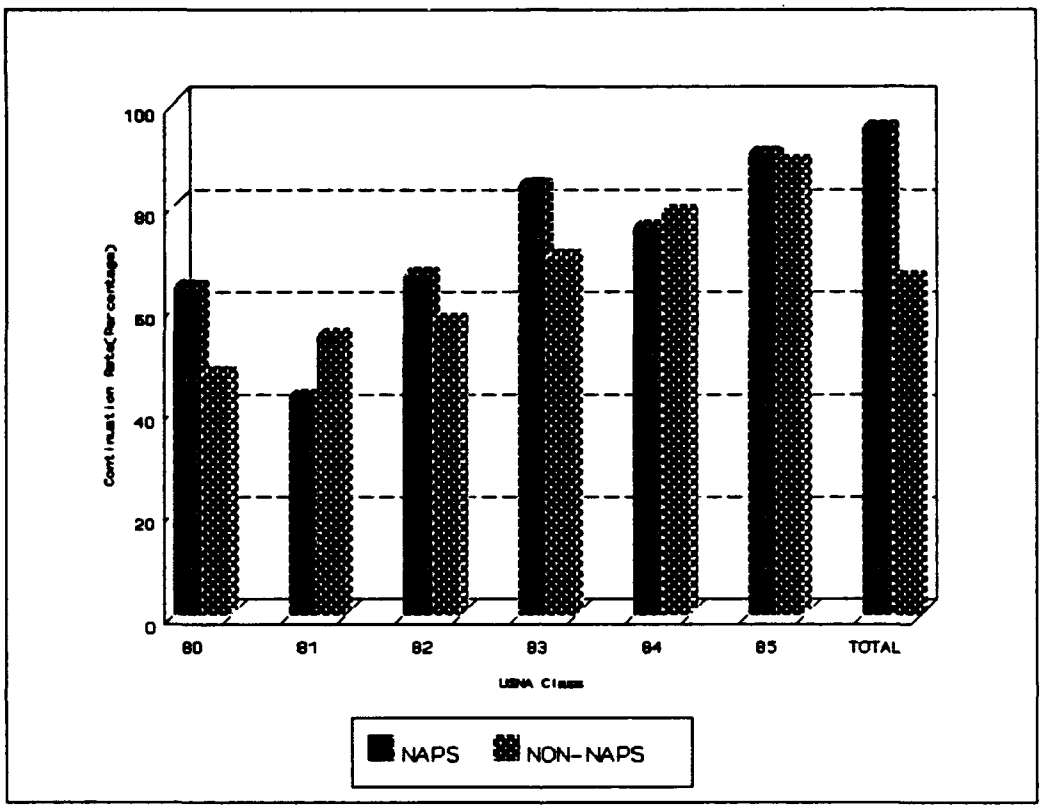
Source: Derived from data provided by NPRDC.

Figure 7B. Continuation Rate by USNA Class: No Postgraduate Education.



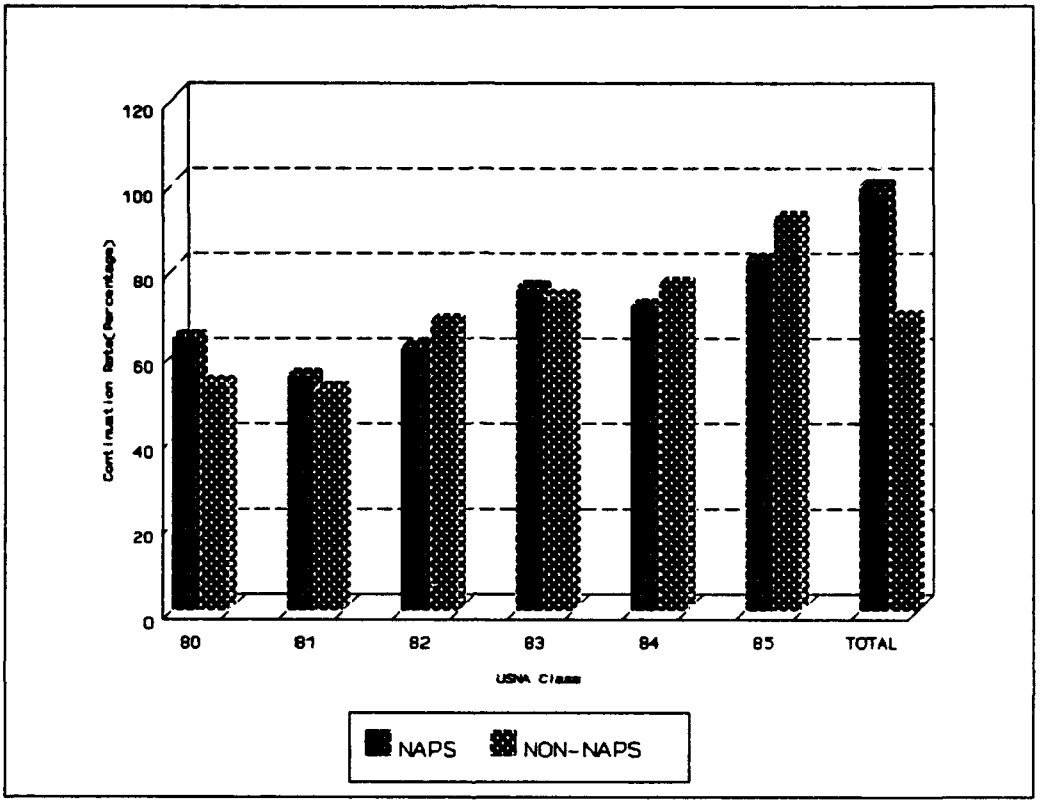
Source: Derived from data provided by NPRDC.

Figure 8A. Continuation Rate by USNA Class: 1-25% Order of Merit.



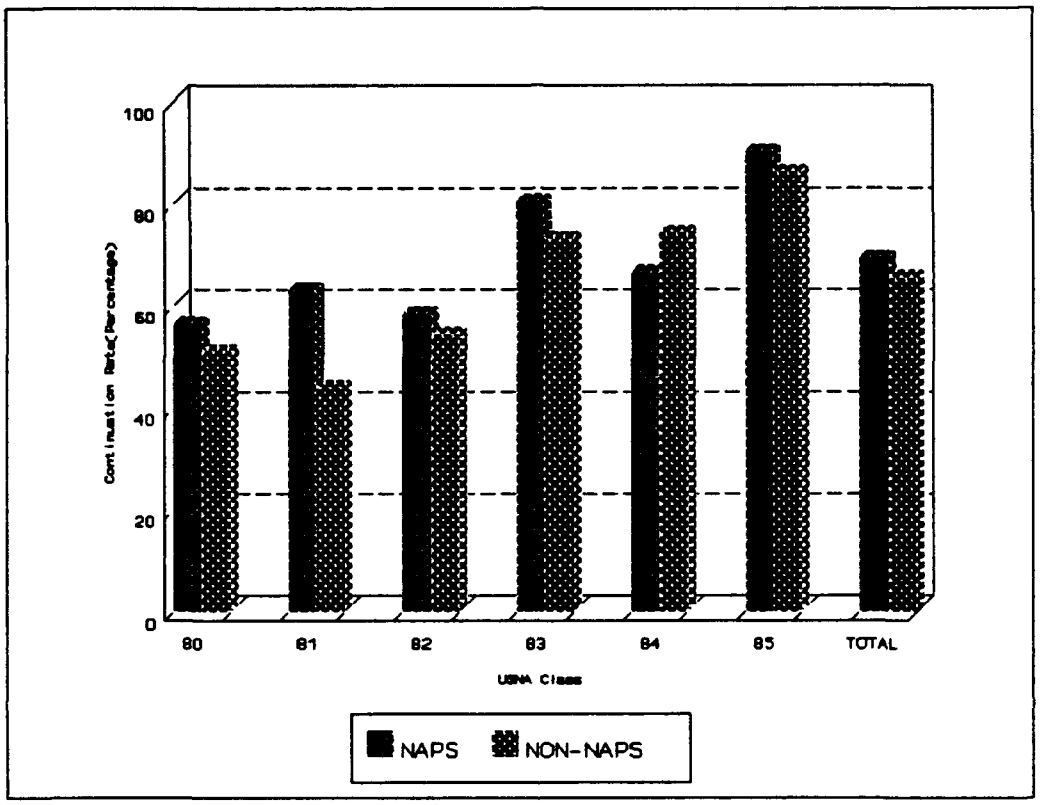
Source: Derived from data provided by NPRDC.

Figure 8B. Continuation Rate by USNA Class: 26-50% Order of Merit.



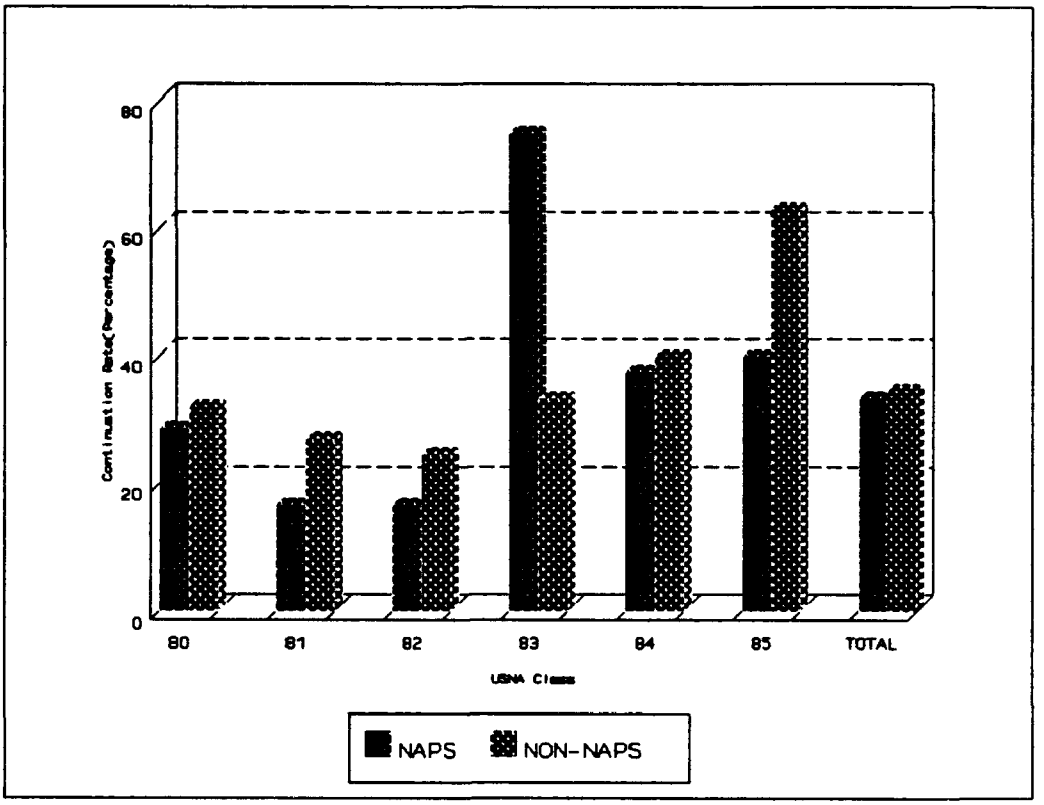
Source: Derived from data provided by NPRDC.

Figure 8C. Continuation Rate by USNA Class: 51-75% Order of Merit.



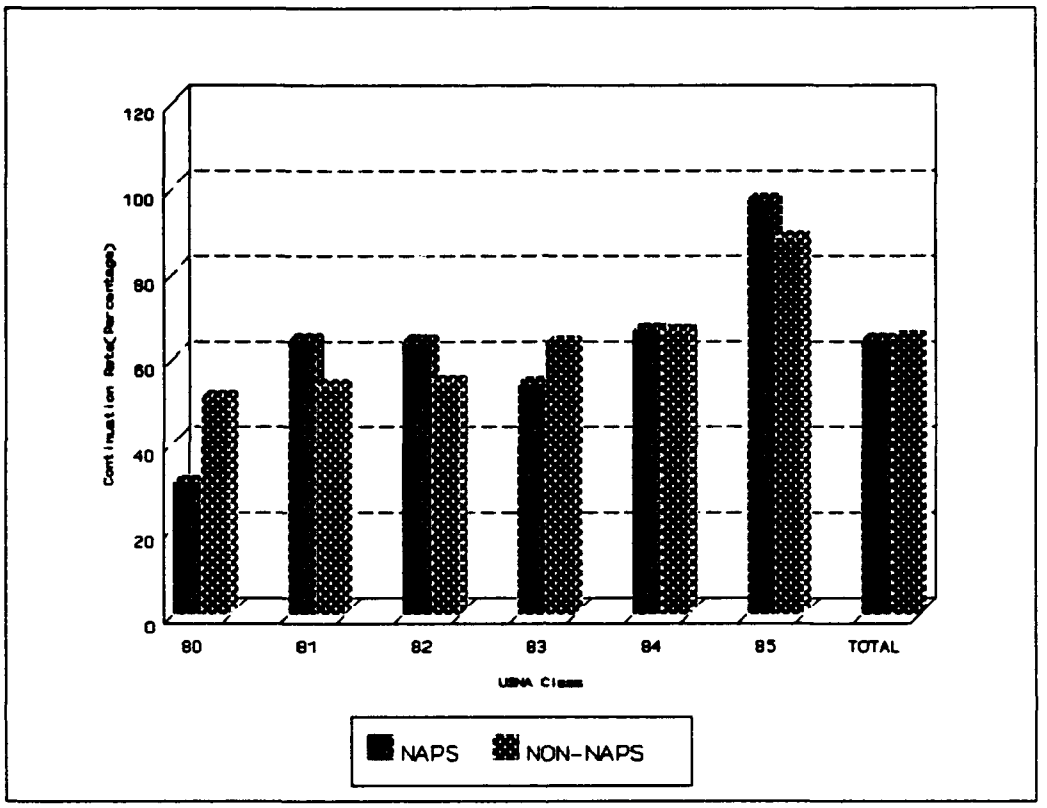
Source: Derived from data provided by NPRDC.

Figure 8D. Continuation Rate by USNA Class: 76-100% Order of Merit.



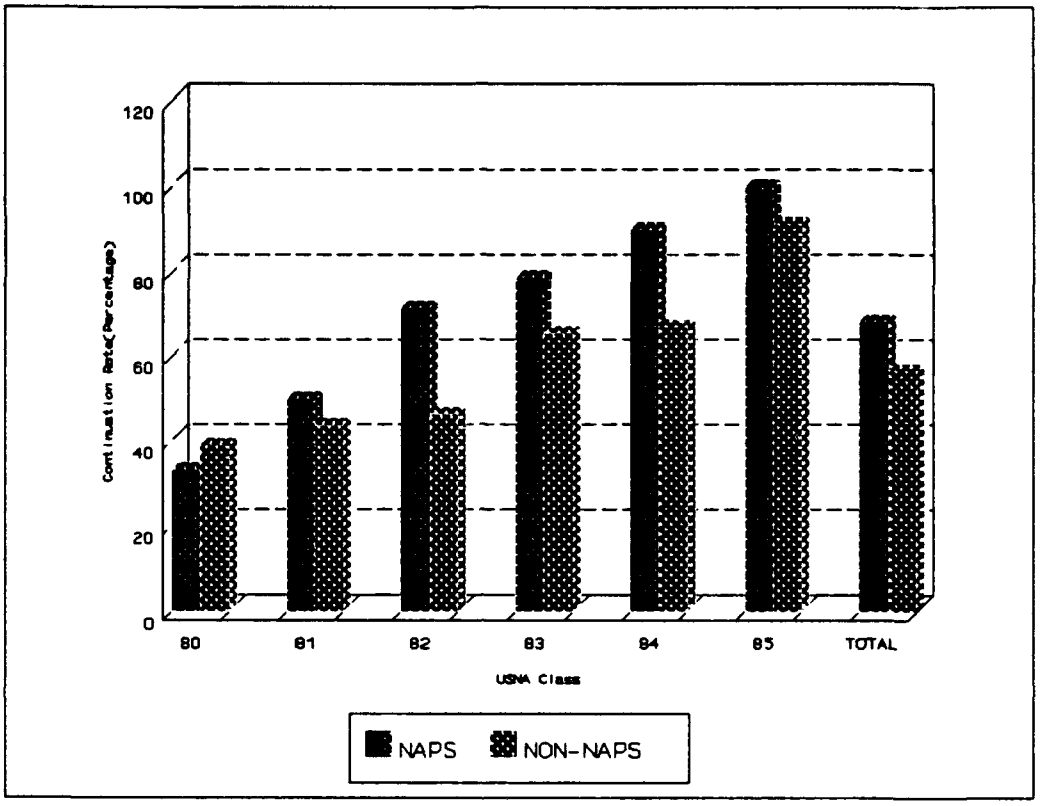
Source: Derived from data provided by NPRDC.

Figure 9A. Continuation Rate by USNA Class: General Unrestricted Line (GURL) Officers



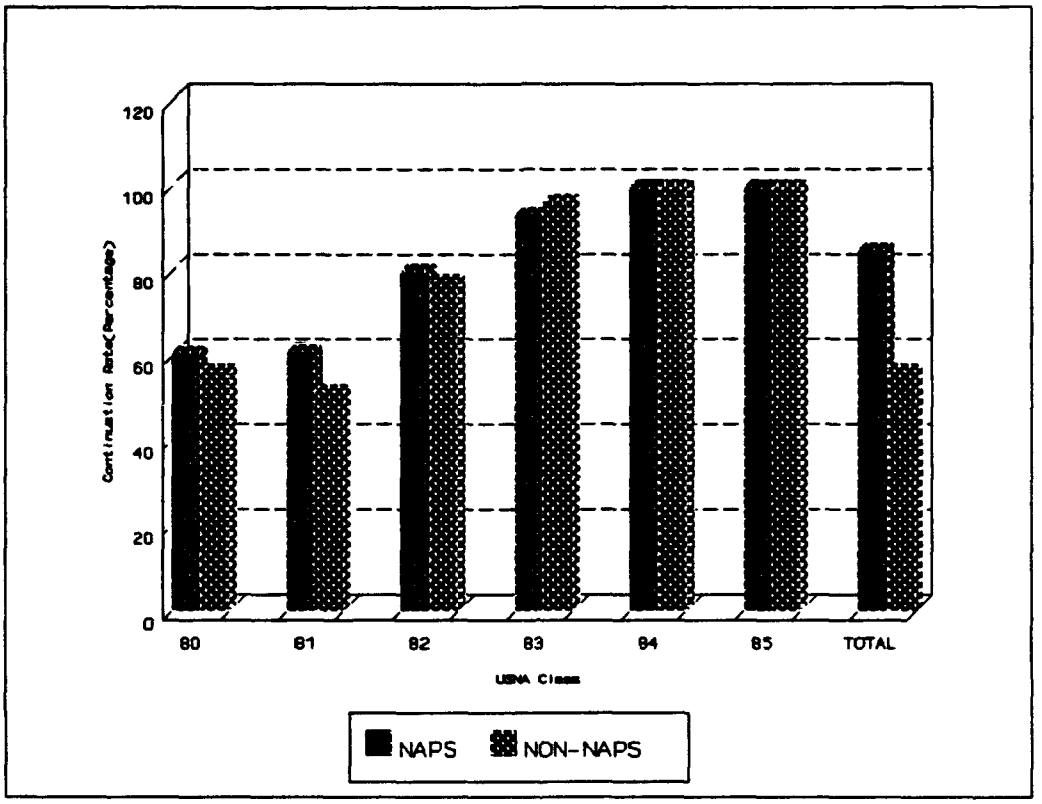
Source: Derived from data provided by NPRDC.

Figure 9B. Continuation Rate by USNA Class: Surface Officers.



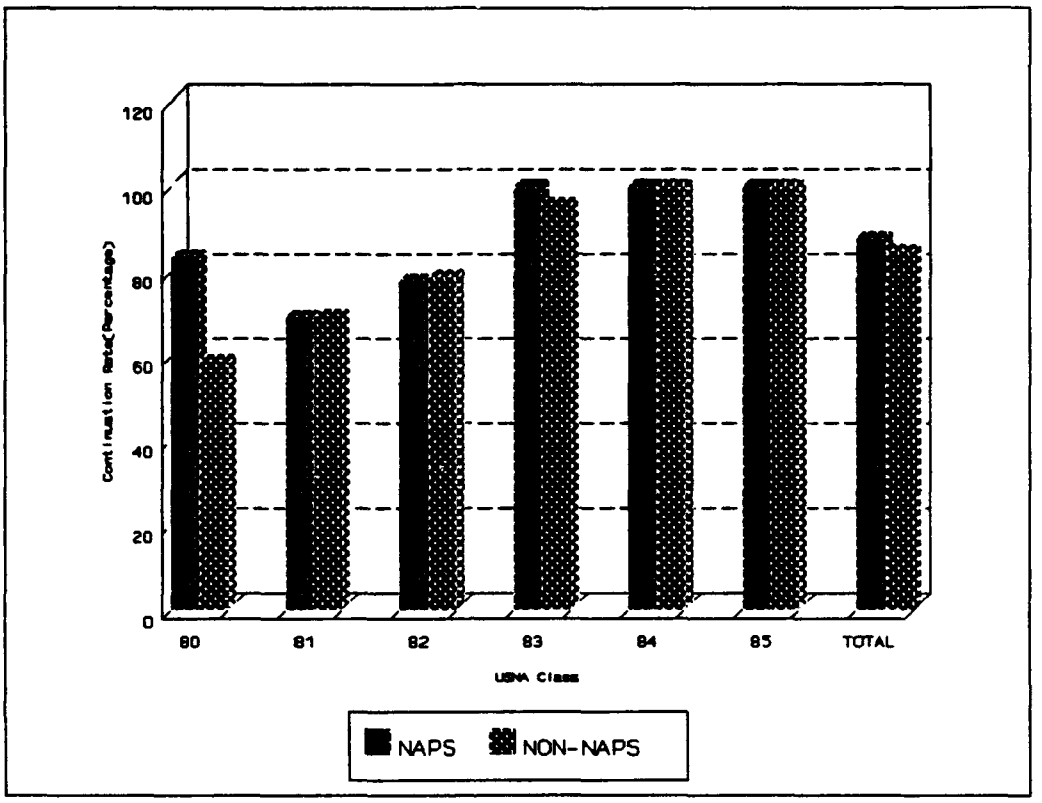
Source: Derived from data provided by NPRDC.

Figure 9C. Continuation Rate by USNA Class: Submarine Officers.



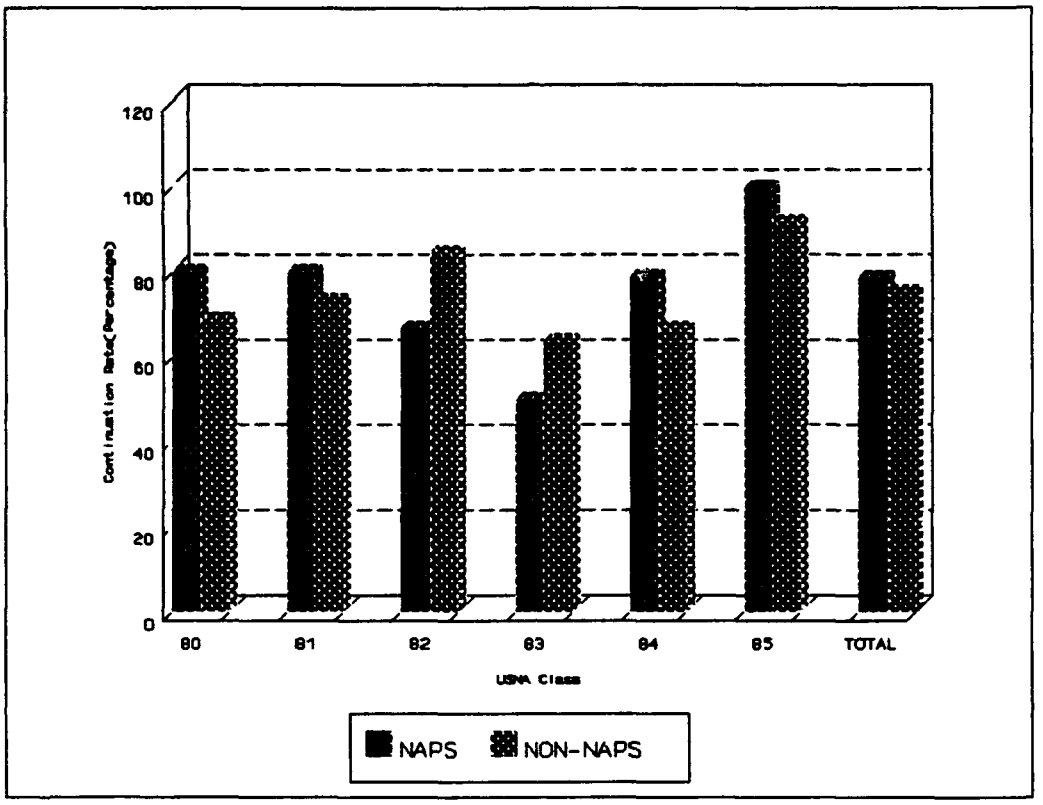
Source: Derived from data provided by NPRDC.

Figure 9D. Continuation Rate by USNA Class: Pilots.



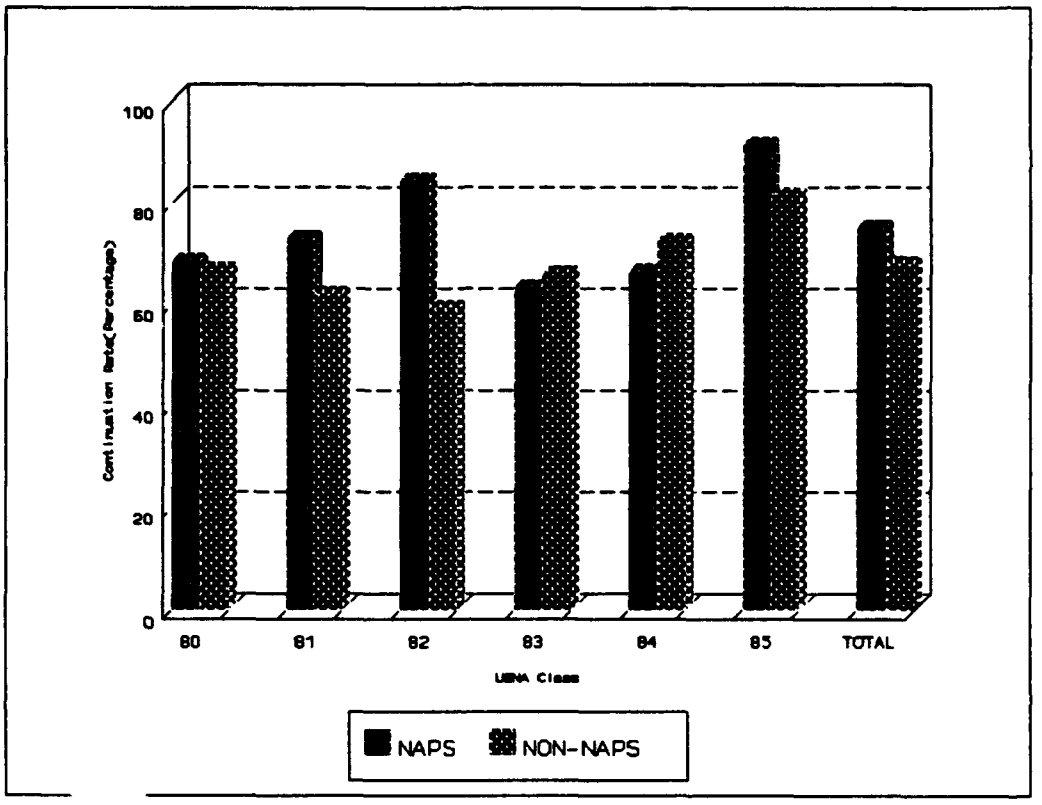
Source: Derived from data provided by NPRDC.

Figure 9E. Continuation Rate by USNA Class: Naval Flight Officers.



Source: Derived from data provided by NPRDC.

Figure 9F. Continuation Rate by USNA Class: Supply Officers.



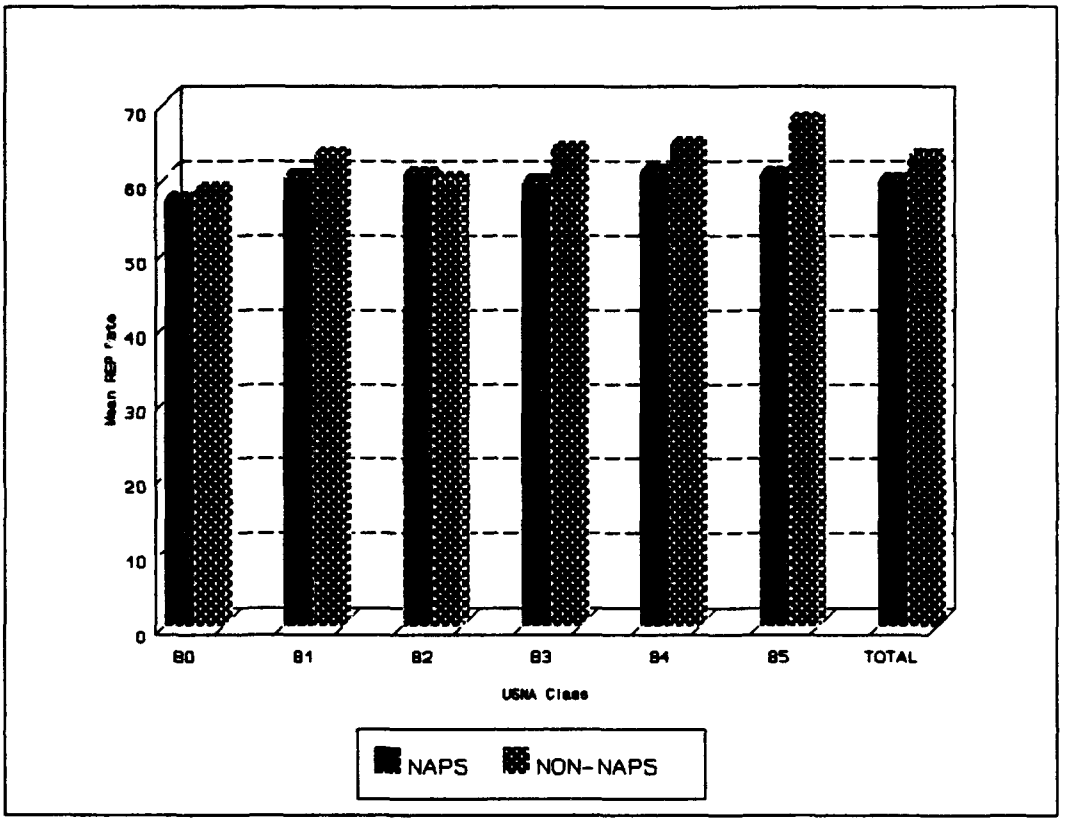
Source: Derived from data provided by NPRDC.

Figure 9G. Continuation Rate by USNA Class: OTHER Officers

APPENDIX D

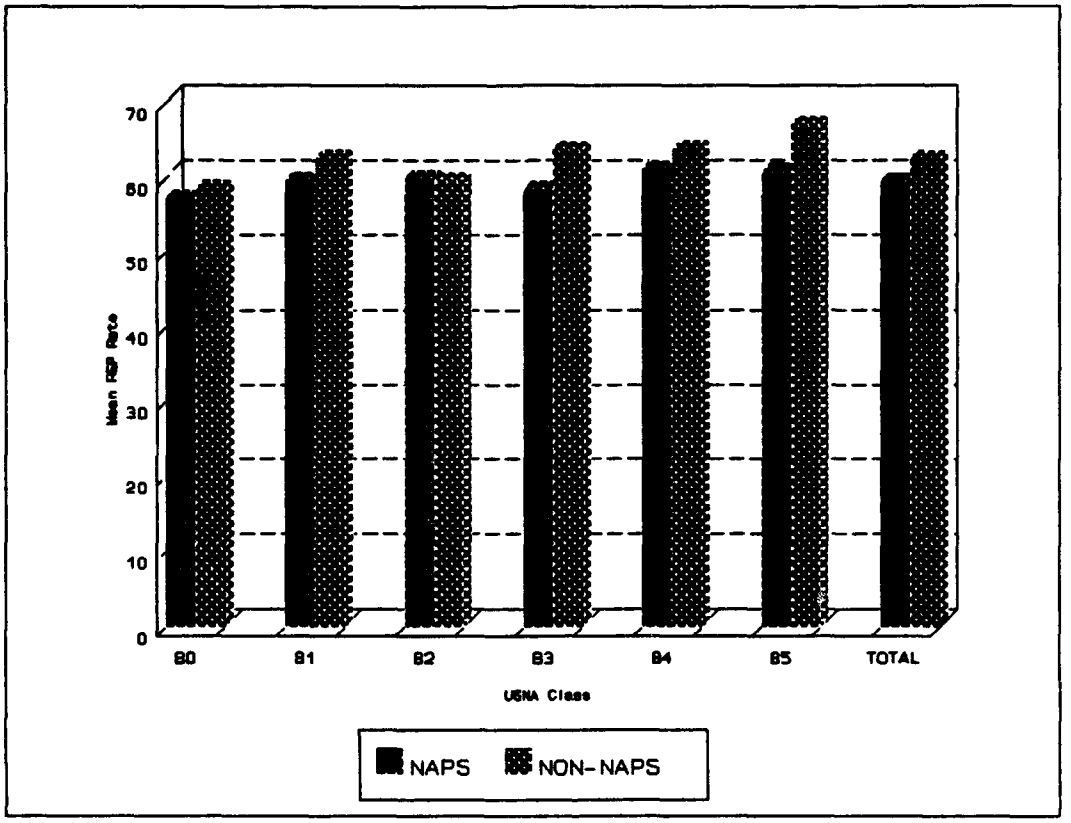
MEAN REP RATE

Figures 10 through 17G depict the results of the mean REP rate analyses also shown in Tables 11 through 18B2.



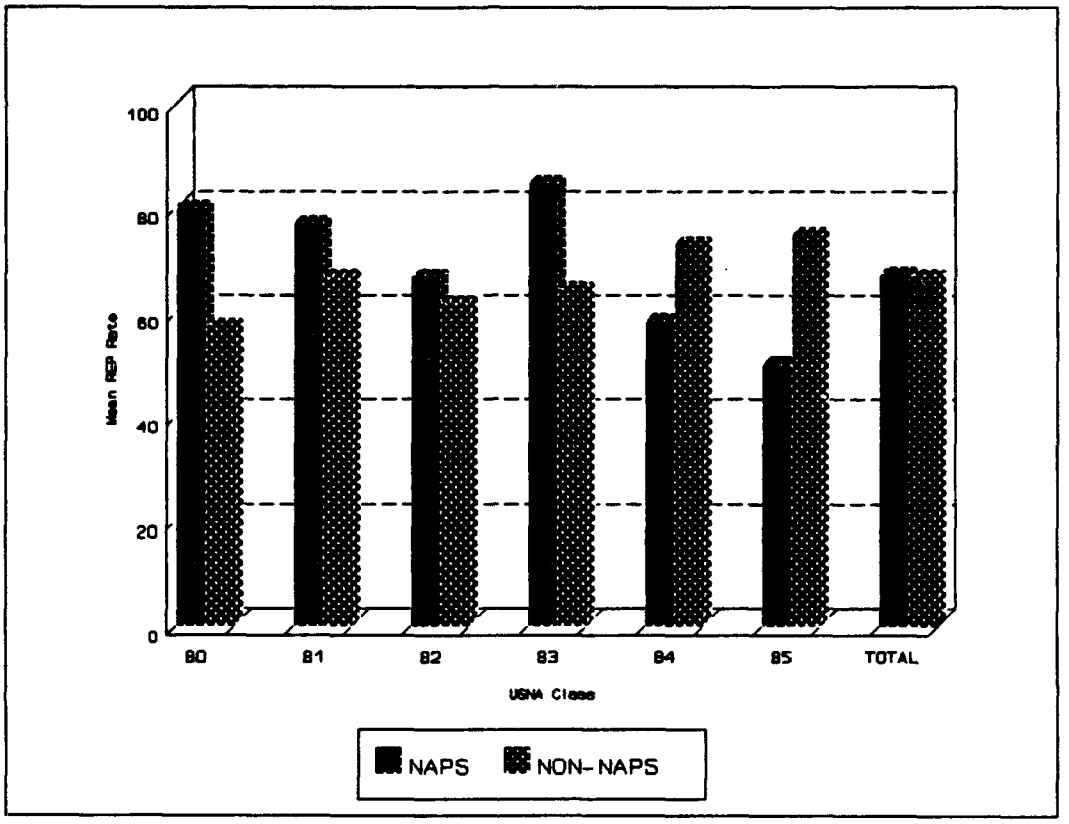
Source: Derived from data provided by NPRDC.

Figure 10. Mean REP Rate for NAPS and Non-NAPS Graduates in the Complete Sample by USNA Class.



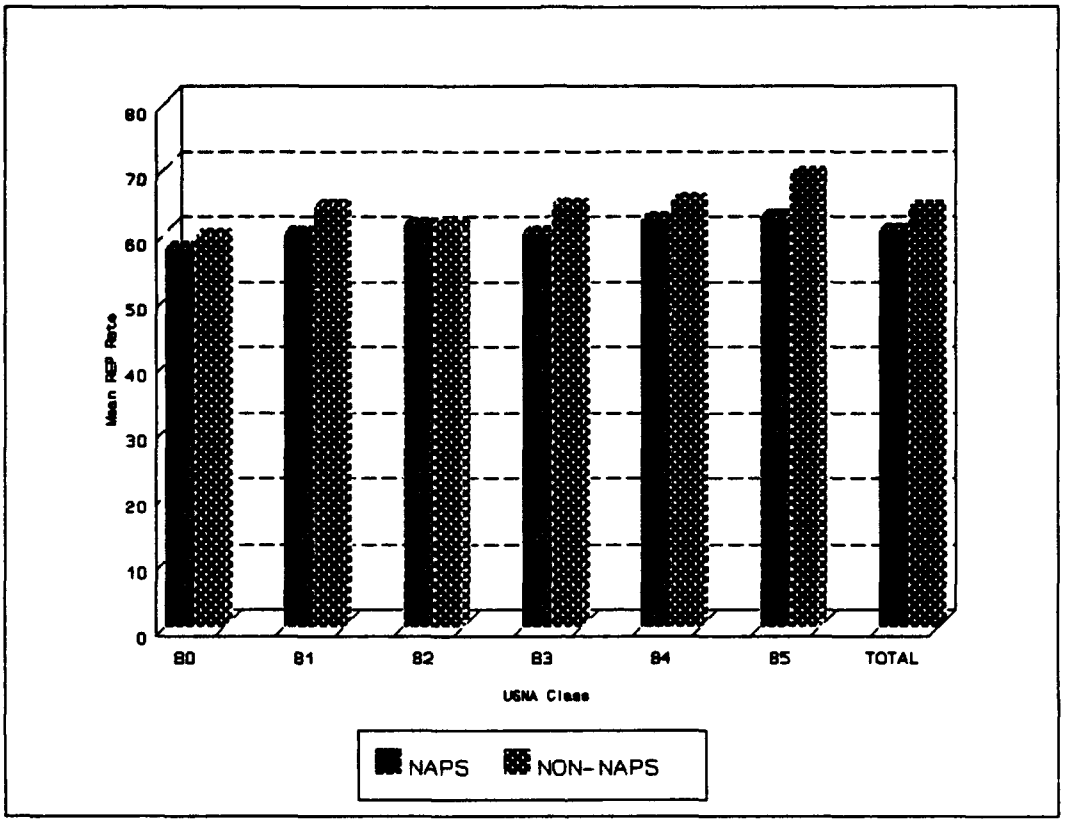
Source: Derived from data provided by NPRDC.

Figure 11A. Mean REP Rate by USNA Class: Male Officers.



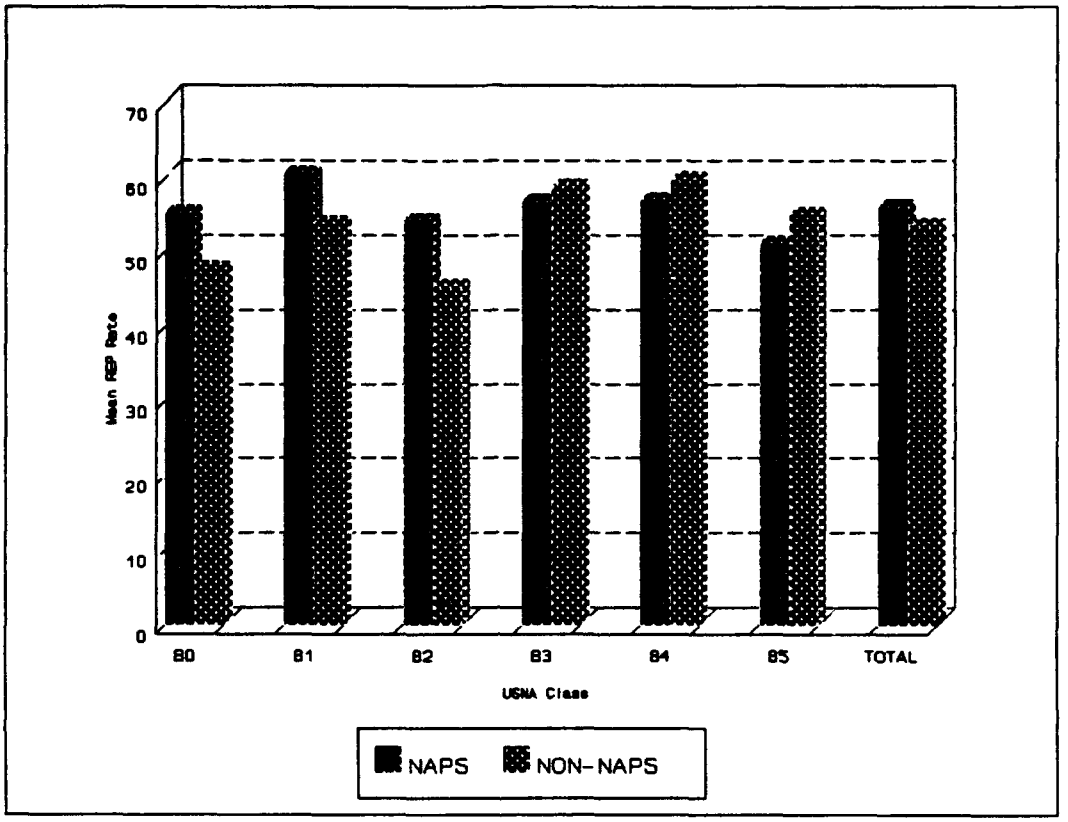
Source: Derived from data provided by NPRDC.

Figure 11B. Mean REP Rate by USNA Class: Female Officers.



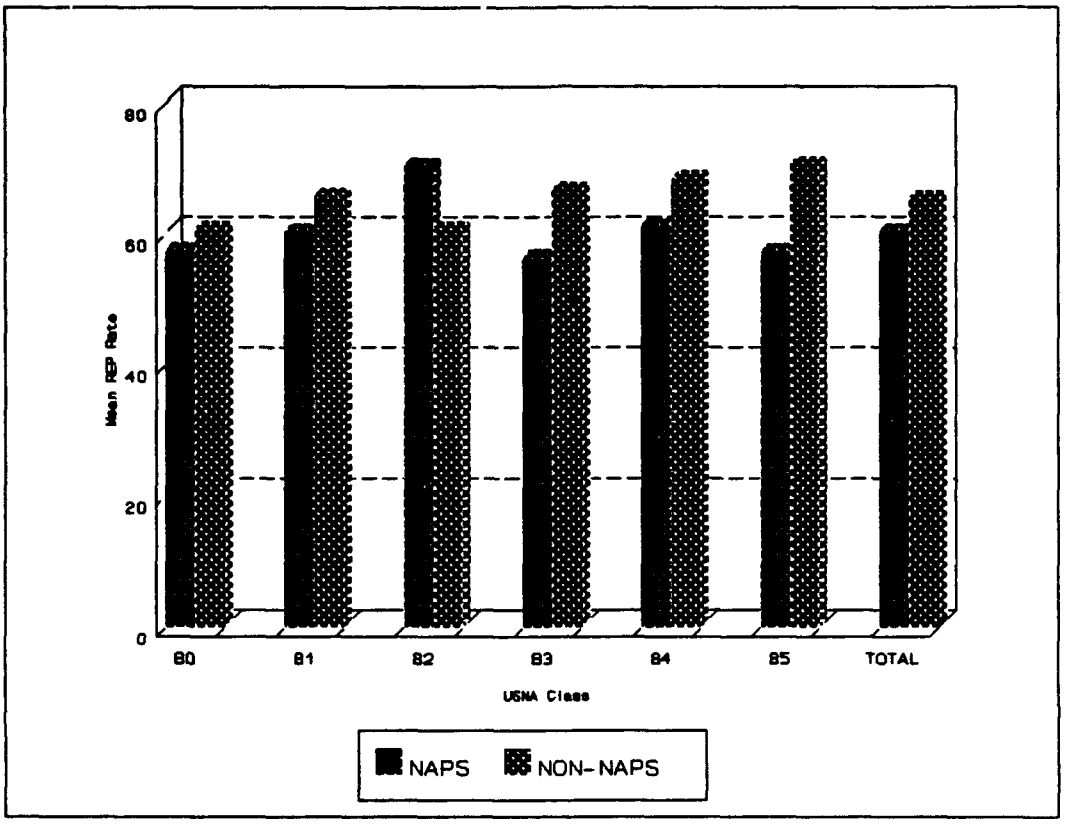
Source: Derived from data provided by NPRDC.

Figure 12A. Mean REP Rate by USNA Class: White Officers.



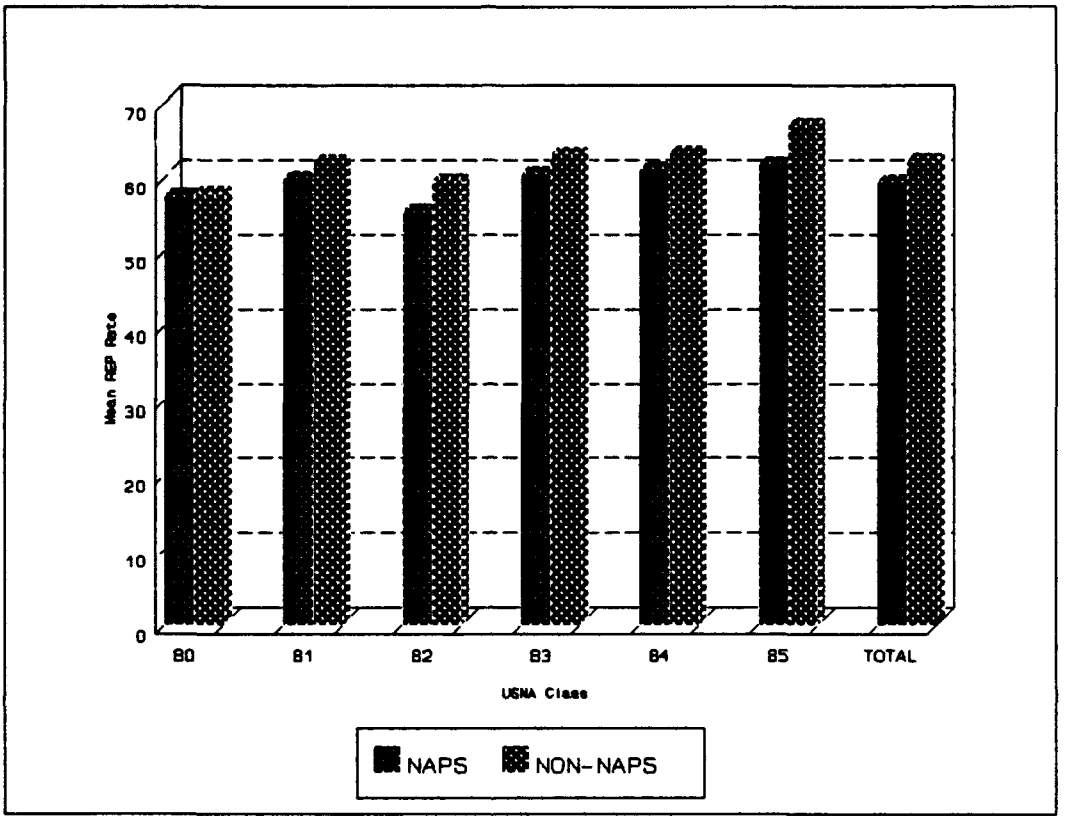
Source: Derived from data provided by NPRDC.

Figure 12B. Mean REP Rate by USNA Class: Nonwhite Officers.



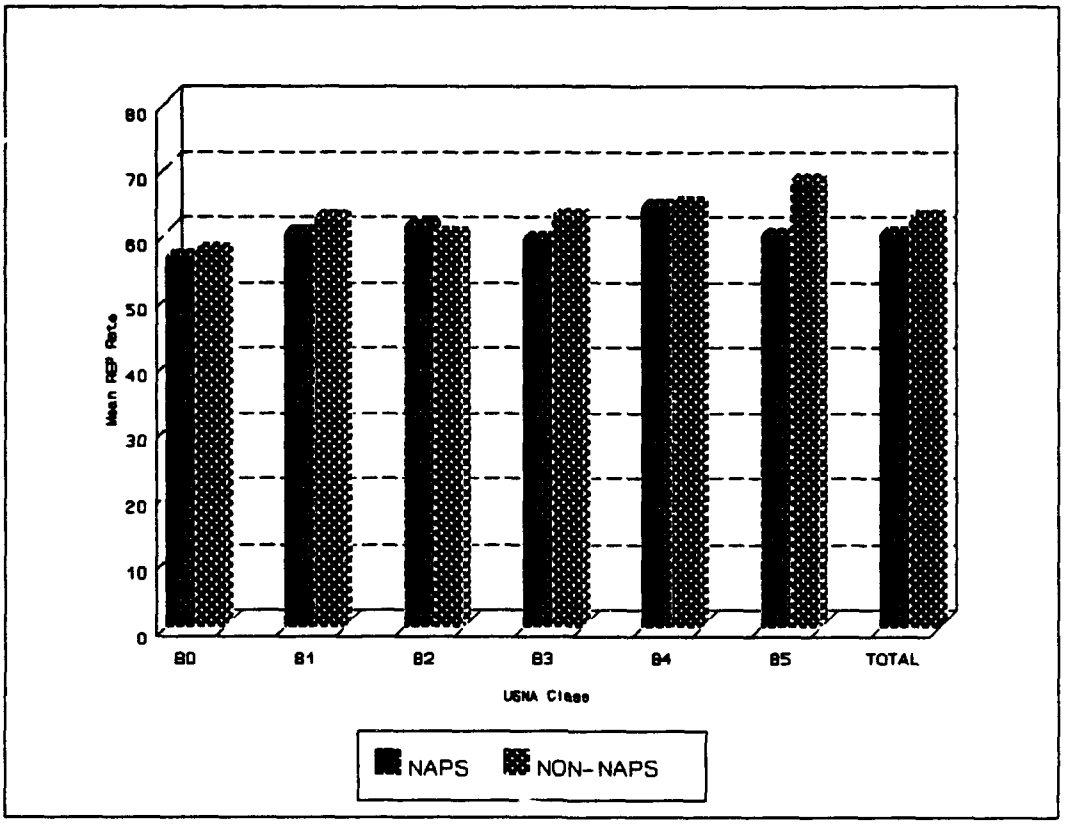
Source: Derived from data provided by NPRDC.

Figure 13A. Mean REP Rate by USNA Class: Recruited Athletes.



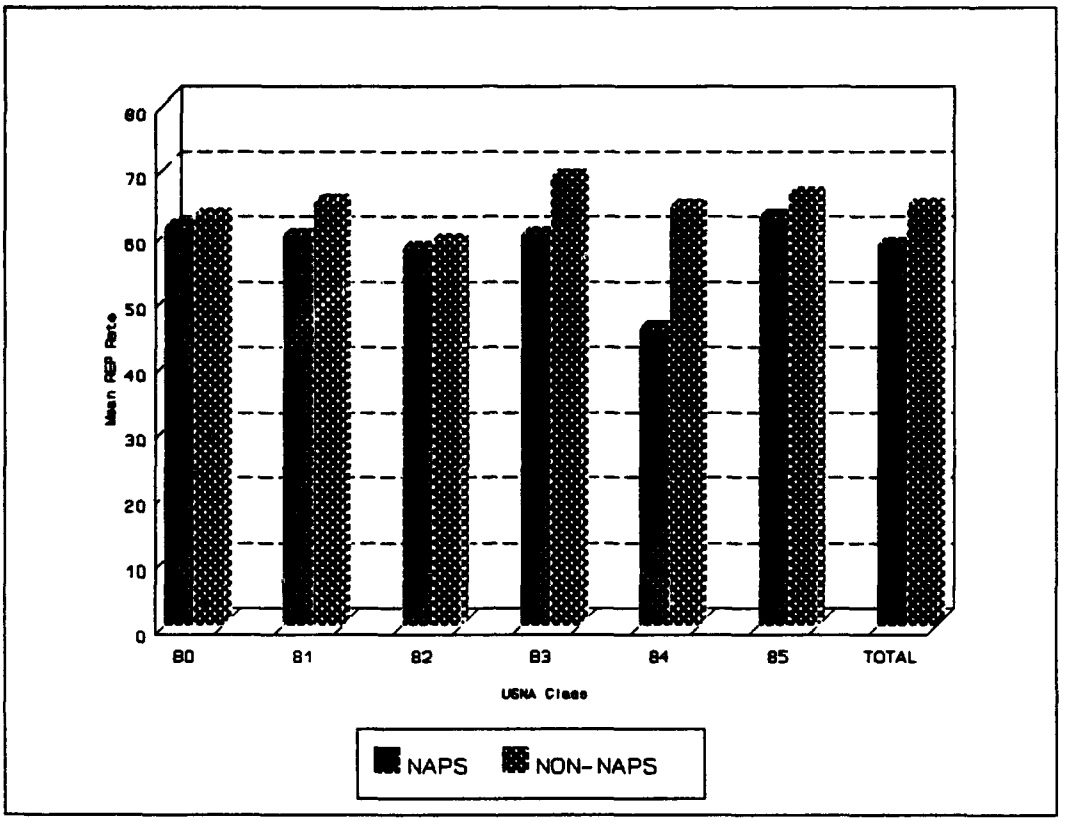
Source: Derived from data provided by NPRDC.

Figure 13B. Mean REP Rate by USNA Class: Non-Recruited Athletes.



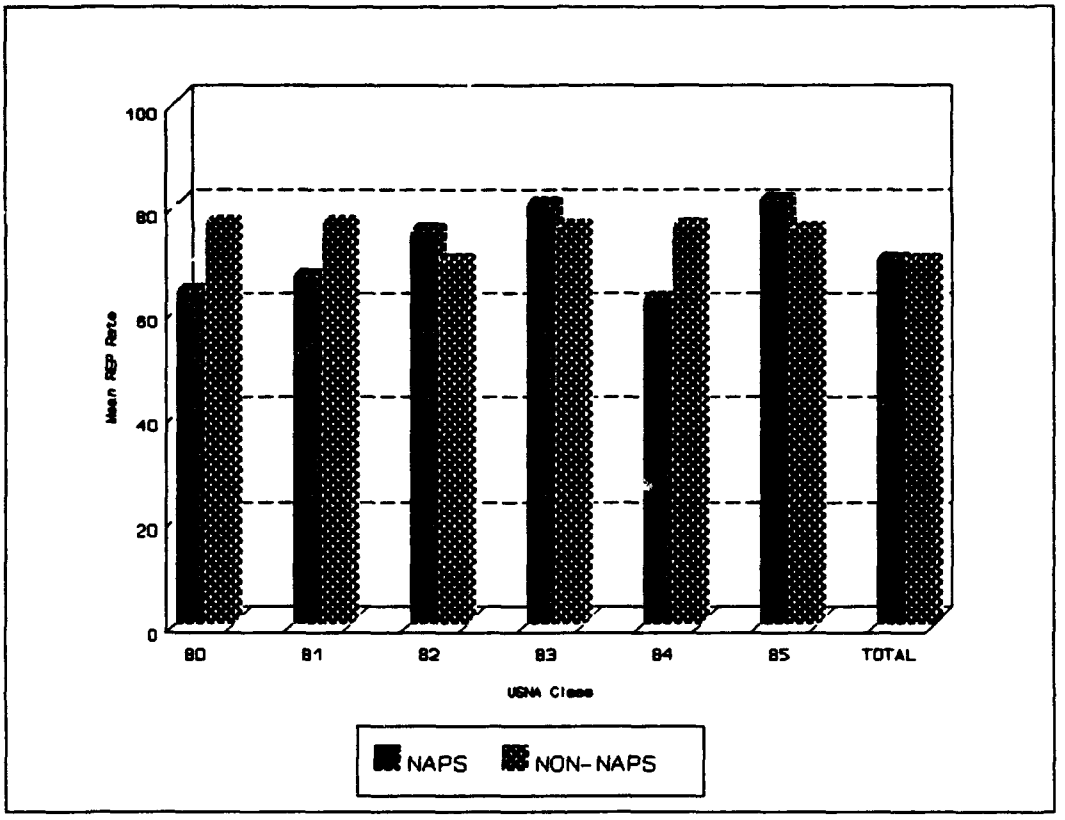
Source: Derived from data provided by NPRDC.

Figure 14A. Mean REP Rate by USNA Class: Technical Majors.



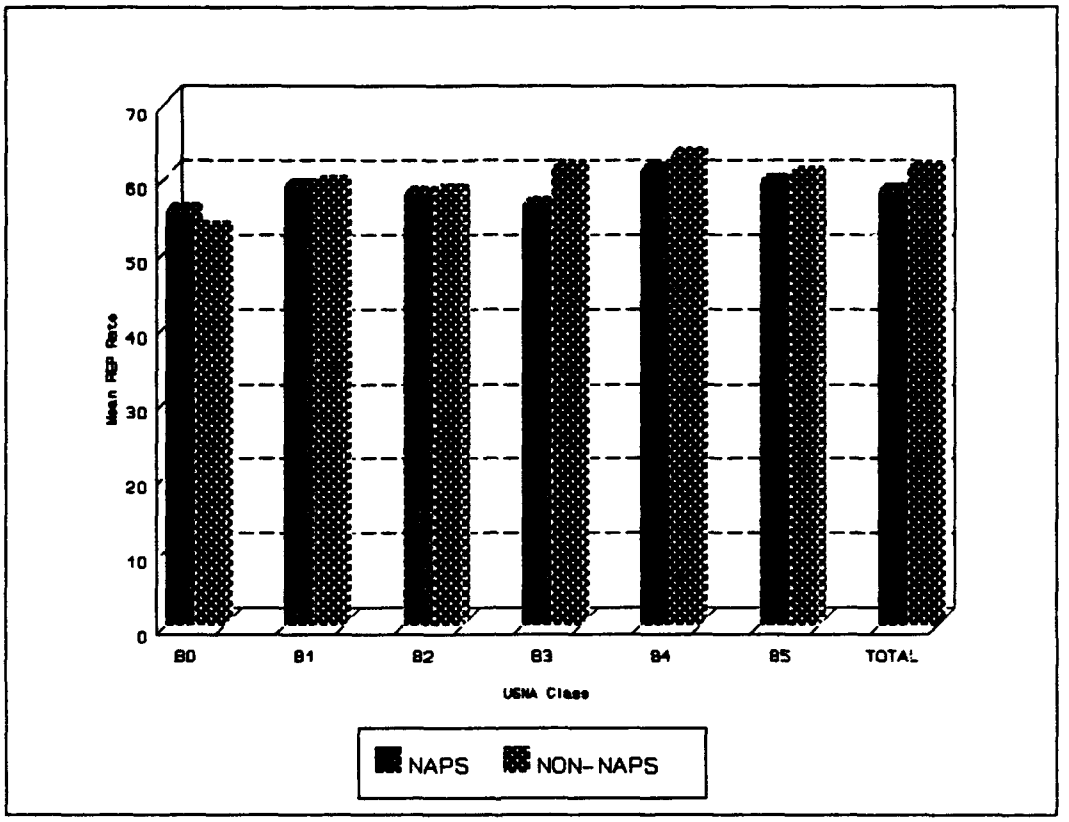
Source: Derived from data provided by NPRDC.

Figure 14B. Mean REP Rate by USNA Class: Non-Technical Majors.



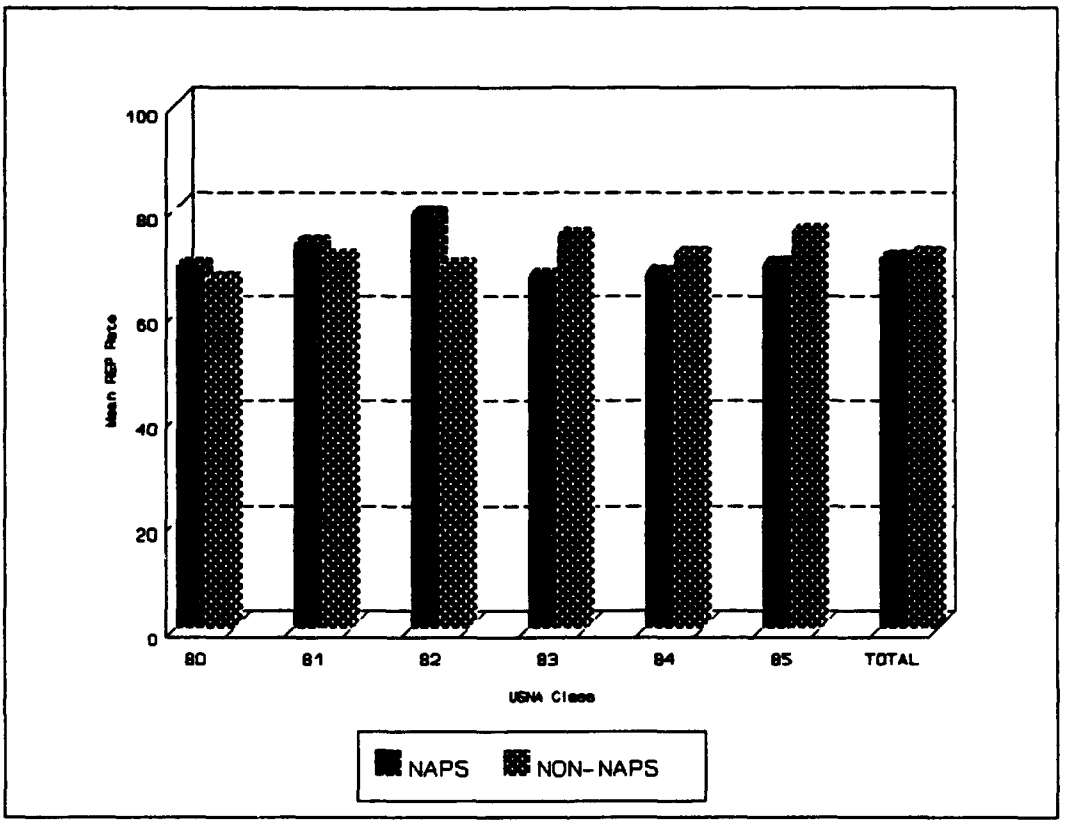
Source: Derived from data provided by NPRDC.

Figure 15A. Mean REP Rate by USNA Class: Postgraduate Education.



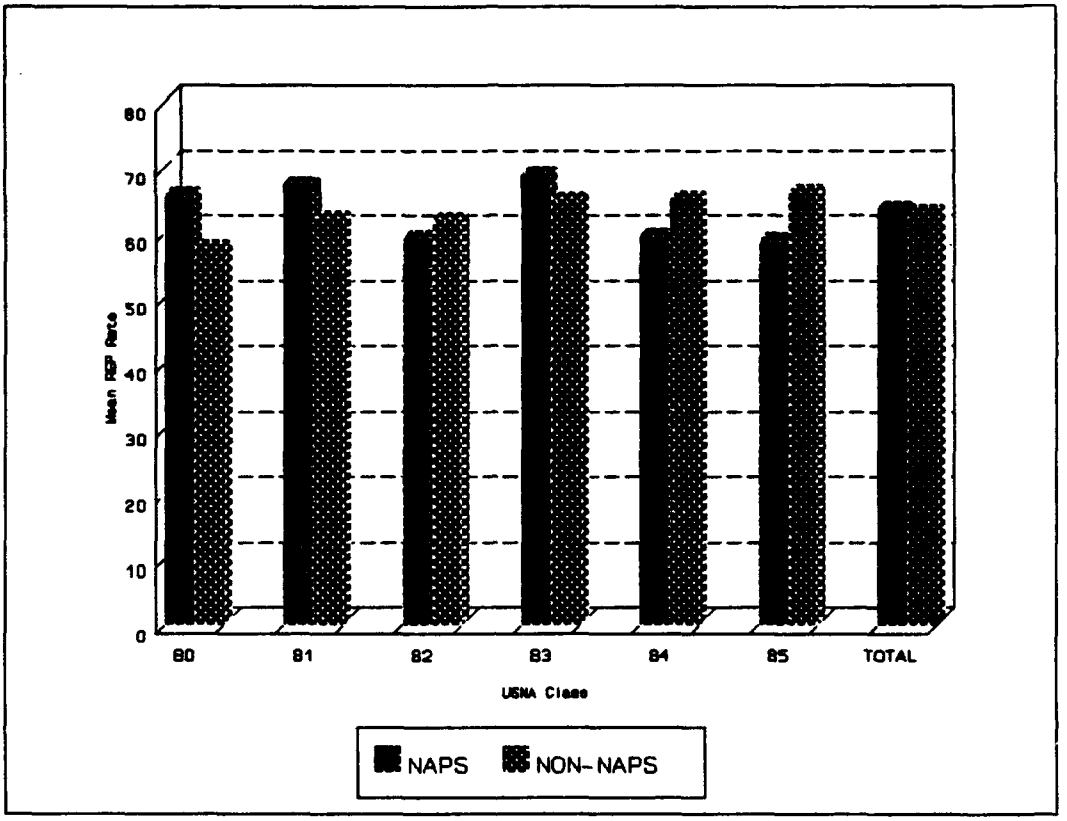
Source: Derived from data provided by NPRDC.

Figure 15B. Mean REP Rate by USNA Class: No Postgraduate Education.



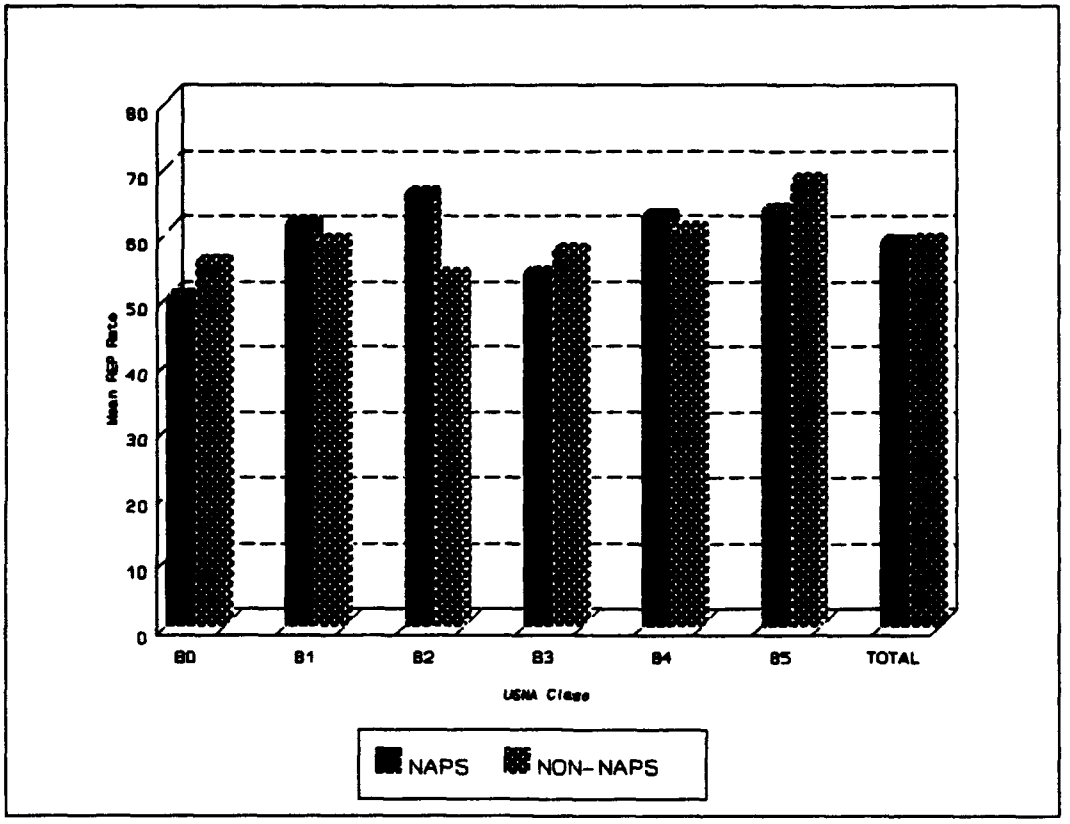
Source: Derived from data provided by NPRDC.

Figure 16A. Mean REP Rate by USNA Class: 1-25% Order of Merit.



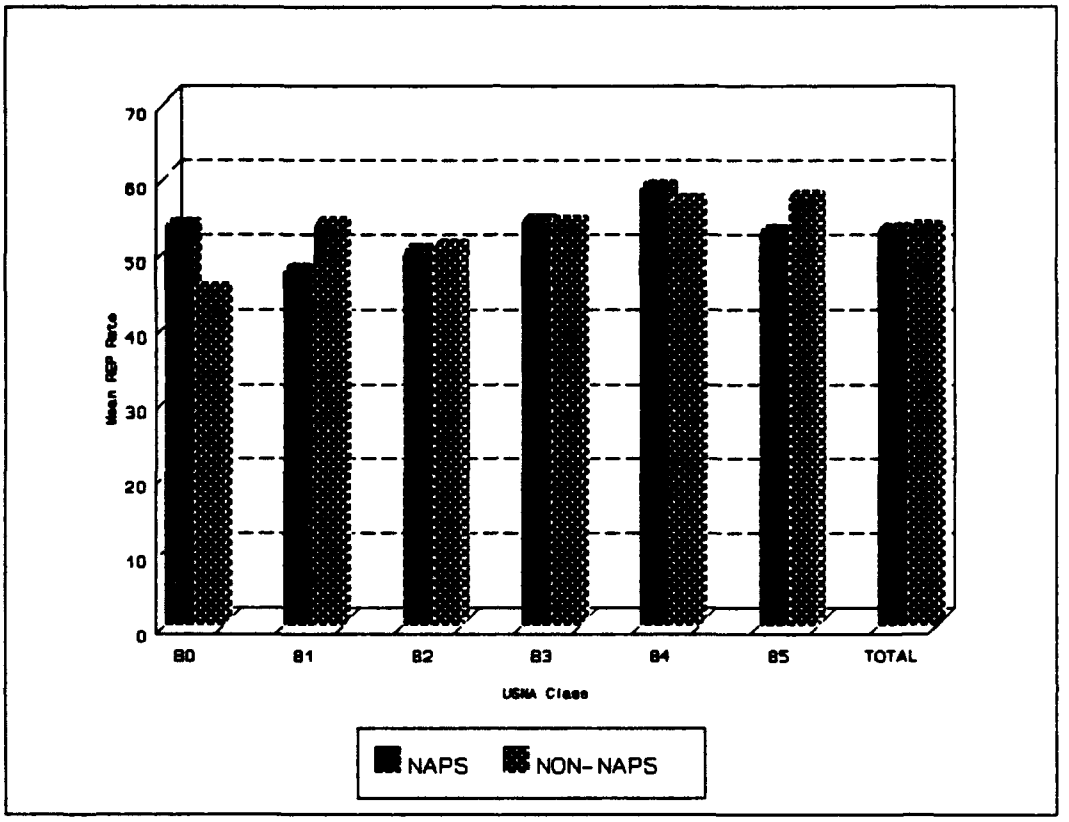
Source: Derived from data provided by NPRDC.

Figure 16B. Mean REP Rate by USNA Class: 26-50% Order of Merit.



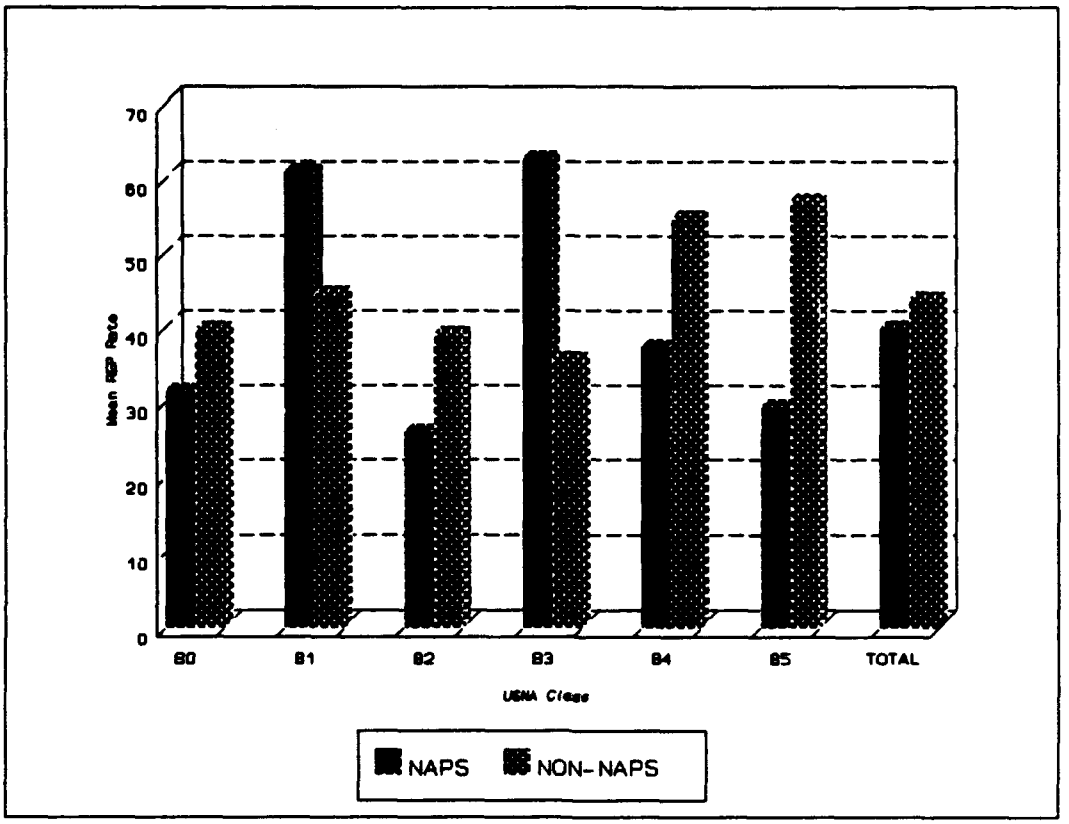
Source: Derived from data provided by NPRDC.

Figure 16C. Mean REP Rate by USNA Class: 51-75% Order of Merit.



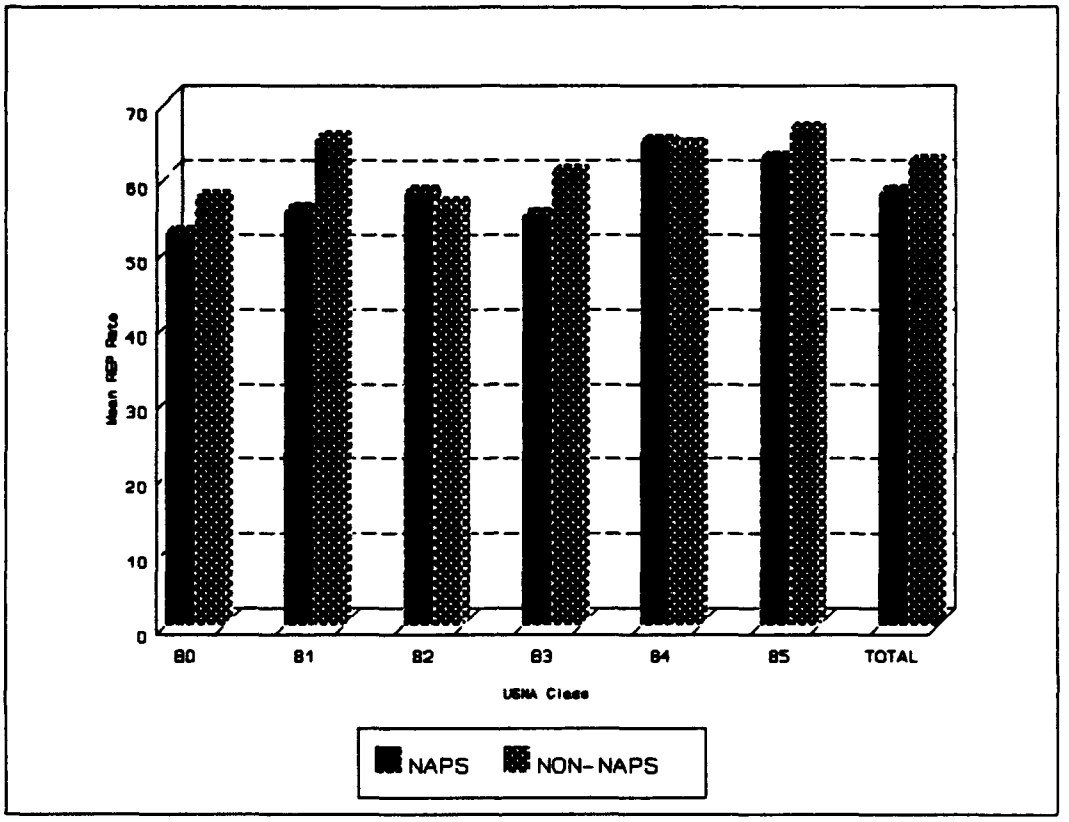
Source: Derived from data provided by NPRDC.

Figure 16D. Mean REP Rate by USNA Class: 76-100% Order of Merit.



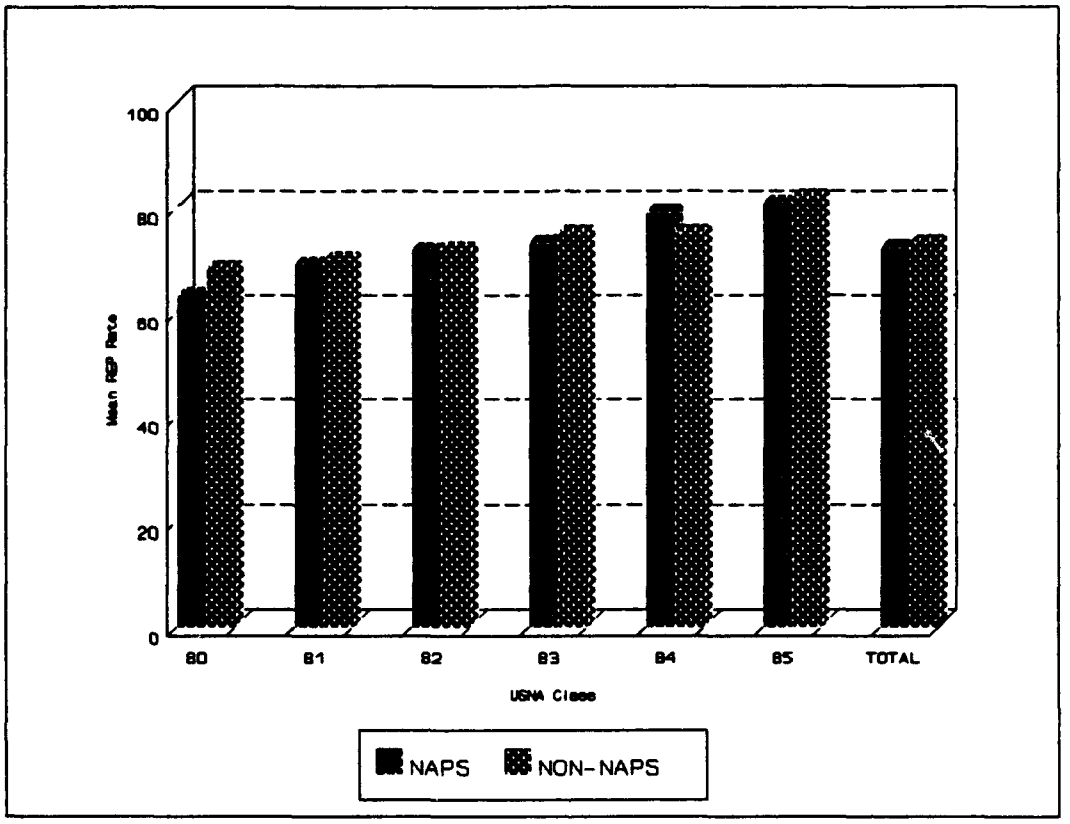
Source: Derived from data provided by NPRDC.

Figure 17A. Mean REP Rate by USNA Class: General Unrestricted Line (GURL) Officers



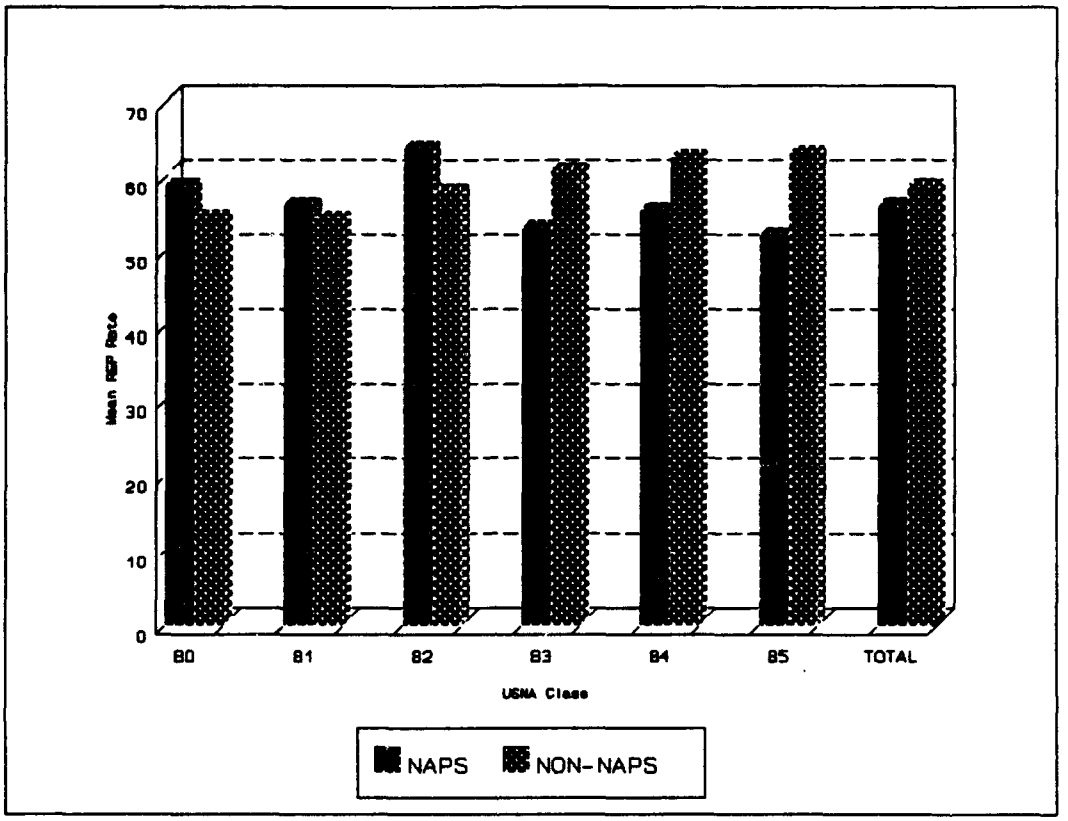
Source: Derived from data provided by NPRDC.

Figure 17B. Mean REP Rate by USNA Class: Surface Officers.



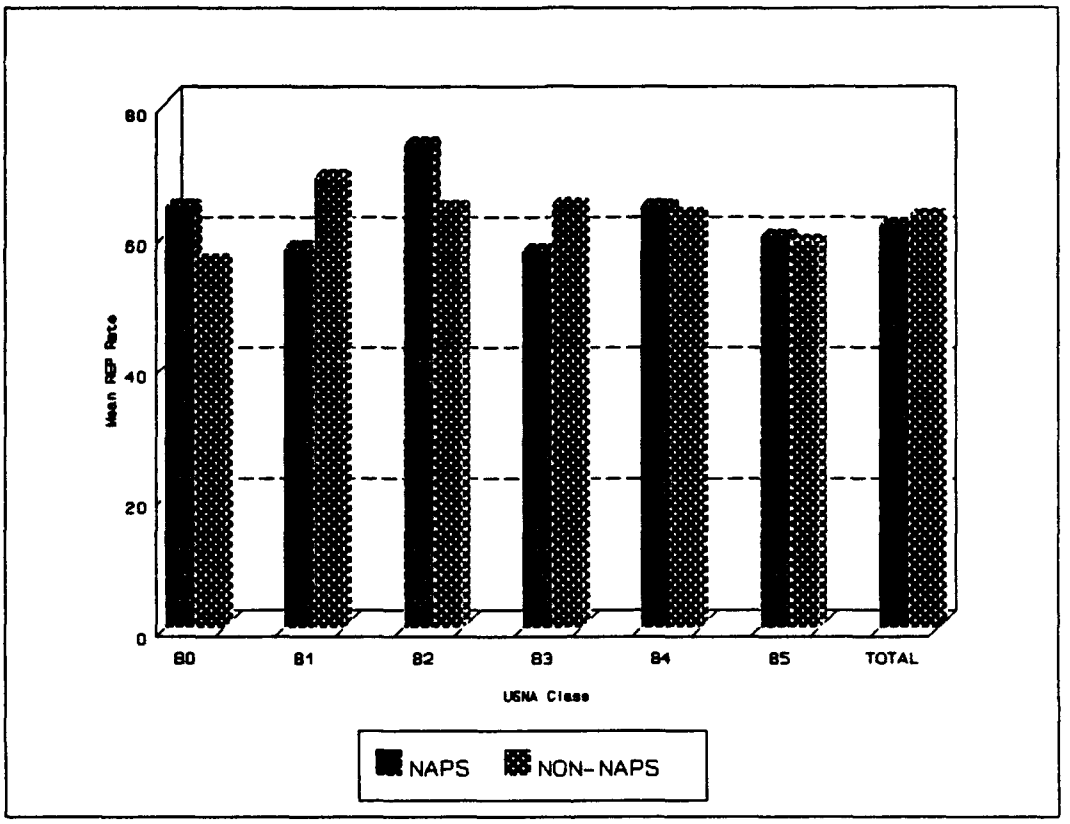
Source: Derived from data provided by NPRDC.

Figure 17C. Mean REP Rate by USNA Class: Submarine Officers.



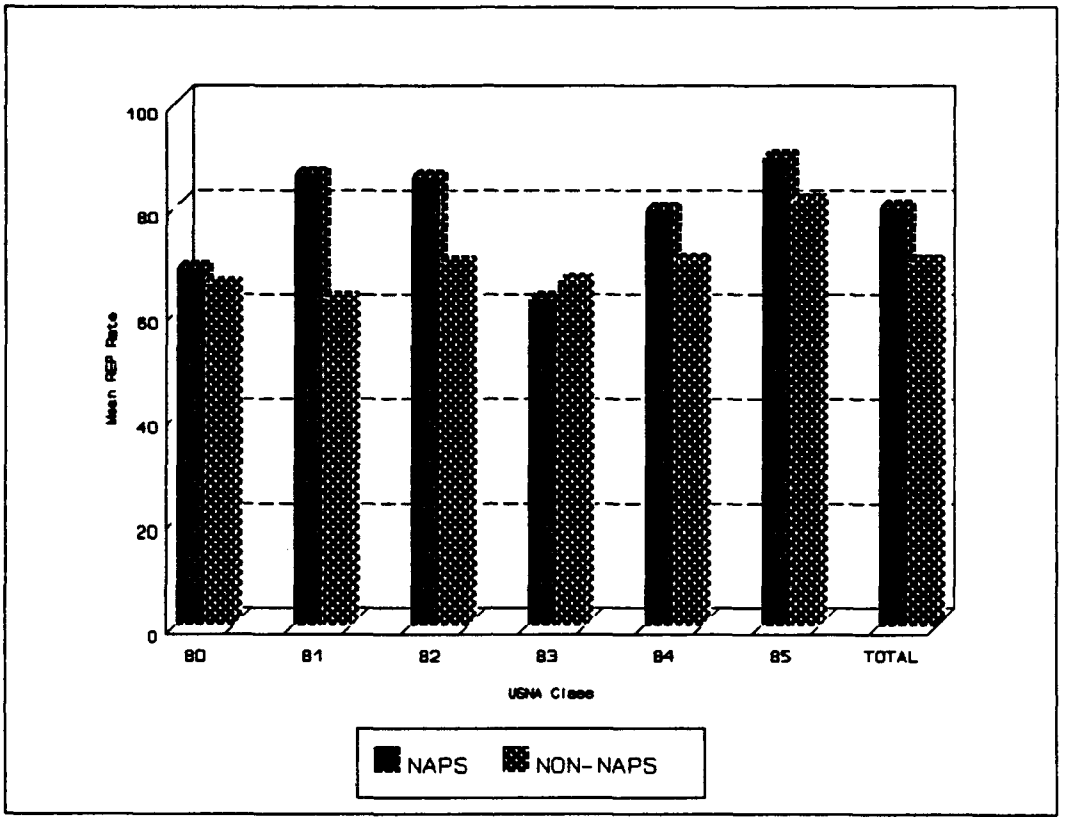
Source: Derived from data provided by NPRDC.

Figure 17D. Mean REP Rate by USNA Class: Pilots.



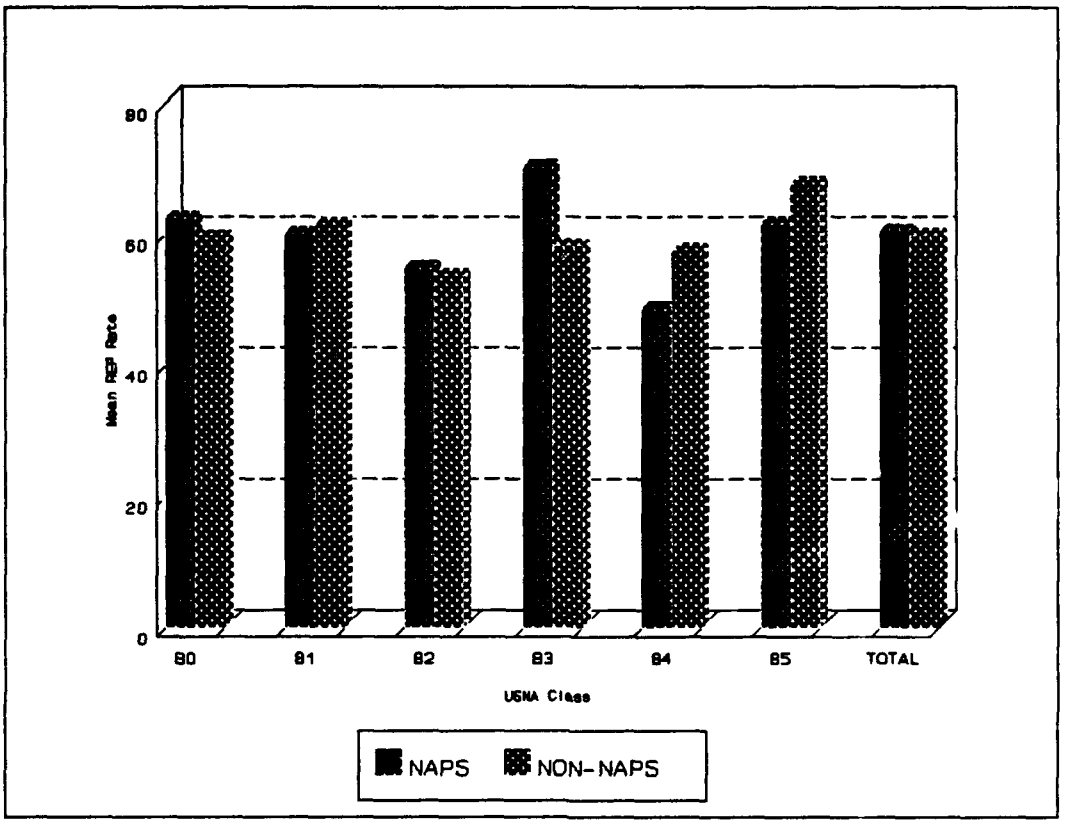
Source: Derived from data provided by NPRDC.

Figure 17E. Mean REP Rate by USNA Class: Naval Flight Officers.



Source: Derived from data provided by NPRDC.

Figure 17F. Mean REP Rate by USNA Class: Supply Officers.



Source: Derived from data provided by NPRDC.

Figure 17G. Mean REP Rate by USNA Class: OTHER Officers

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